

SEQUENCE LISTING

<110> Van Rooijen, Gijs
 Deckers, Harm
 Heifetz, Peter Bernard
 Briggs, Steven
 Dalmia, Bipin Kumar
 Del Val, Greg
 Zaplachinski, Steve
 Moloney, Maurice

<120> METHODS FOR THE PRODUCTION OF MULTIMERIC PROTEINS, AND RELATED COMPOSITIONS

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<223> Chimeric

<221> CDS

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<223> cDNA encoding NADPH thioredoxin reductase

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Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
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aaa cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt 144
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
35 40 45

ggt caa cta aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca 192
Gly Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
50 55 60

gaa ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg 240
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
65 70 75 80

gag cga ttc ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat 288
Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
85 90 95

ttc tct tcg aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc 336
Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
100 105 110

gct gac gct gtg att ctc gct act gga gct gtg gct aag cgg ctt agc 384
Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
115 120 125

ttc gtt gga tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc 432
Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile
130 135 140

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cct ctt gcg gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac	528
Pro Leu Ala Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Asn	
165 170 175	
ttt ctt aca aaa tat gga tct aaa gtg tat ata atc cat agg aga gat	576
Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp	
180 185 190	
gct ttt aga gcg tct aag att atg cag cag cga gct ttg tct aat cct	624
Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro	
195 200 205	
aag att gat gtg att tgg aac tcg tct gtt gtg gaa gct tat gga gat	672
Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp	
210 215 220	
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Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr	
225 230 235 240	
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Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly	
245 250 255	
cat gag cca gct acc aag ttt ttg gat ggt ggt gtt gag tta gat tcg	816
His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser	
260 265 270	
gat ggt tat gtt gtc acg aag cct ggt act aca cag act agc gtt ccc	864
Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro	
275 280 285	
gga gtt ttc gct gcg ggt gat gtt cag gat aag aag tat agg caa gcc	912
Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala	
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atc act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat	960
Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His	
305 310 315 320	
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325 330	

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 <212> PRT
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 35 40 45
 Gly Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro

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Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val Asp
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Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile Leu
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Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala Asn
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Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg Asp
			180					185					190	
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn Pro
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Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly Asp
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Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile Gly
			245						250					255
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp Ser
			260					265						270
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val Pro
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Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln Ala
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Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu His
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Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp		
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Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp Phe
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Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu Ala
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Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn Phe
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Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	Asp	Arg	Arg	Asp Ala
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Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile
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Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr
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<210> 13
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<220>
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Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr
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Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly
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His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser
			260					265					270		
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro
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Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala
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 <221> CDS
 <222> (1555)...(1899)

<223> Chimeric

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 5 10 15

aac gag cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg gtt 1653
 Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val
 20 25 30

gat ttc acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca ttc 1701
 Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe
 35 40 45

ttt gct gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag gtt 1749
 Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val
 50 55 60 65

gat act gat gaa ttg aag tgc gtg gca agt gat tgg gcg ata cag gcg 1797
 Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala
 70 75 80

atg cca acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa gtt 1845
Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val
85 90 95

gtt gga gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac ttg 1893
Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu
100 105 110

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Ala *

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gttgatatgt atatgaaagg gtactatttg aactctctta ctctgtataa aggttggatc 2489
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atctatacaa tcgttttagcc ttgctggacg actctcaatt atttaaacga gagtaaacat 2729
atttgacttt ttggttattt aacaaattat tatttaacac tatatgaaat tttttttttt 2789
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taatttgggt tgtcttggtt gctgcataat ttatgcagta aaacactaca cataaccctt 2969
ttagcagtag agcaatgggt gaccgtgtgc ttagcttctt ttattttatt tttttatcag 3029
caaagaataa ataaaataaa atgagacact tcagggatgt ttcaaccctt atacaaaacc 3089
ccaaaaacaa gtttctctagc accctacca ctaaggtagc 3129

<210> 15
<211> 114
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimeric

<400> 15
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
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Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
20 25 30
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
50 55 60
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
65 70 75 80
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
85 90 95
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
100 105 110
Leu Ala

<210> 16
<211> 3888
<212> DNA
<213> Artificial sequence

<220>
<223> Chimeric

<221> CDS
<222> (1555) ... (1907)

<221> CDS
<222> (2148) ... (2659)

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tatccctaca aatttatttat ttgttaaaca ttttcaaacc gcataaaatt ttatgaagtc 240
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caatataaac aaattcttta ccttaagaag gatttcccat tttatatattt aaaaatatat 420
ttatcaaata tttttcaacc acgtaaaatc cataataata agttgtttca aaagtaataa 480
aatttaactc cataattttt ttattcgact gatcttaaag caacacccag tgacacaact 540
agccattttt ttctttgaat aaaaaaatcc aattatcatt gtattttttt tatacaatga 600
aaatttcacc aaacaatcat ttgtggtatt tctgaagcaa gtcattgttat gcaaaattct 660
ataattccca ttttgacacta cgggaagtaac tgaagatctg cttttacatg cgagacacat 720
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tattacttct aaaaaattaa ttagatataa ttaaaatatt acttttttaa ttttaagttt 840
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catgtatgct taaatgccat gcaaagcaac acgtgcttaa catgcacttt aaatggctca 1260
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                                     Met
                                     1

gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1605
Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln
                    5                      10                      15

tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1653
Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
                    20                      25                      30

gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1701
Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
                    35                      40                      45

gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1749
Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
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gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1797
Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
                    70                      75                      80

agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1845
Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
                    85                      90                      95

ggg ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1893
Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
                    100                      105                      110

tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttgtgca 1947
Ser Trp Ile Tyr Lys
                    115

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atattgtgcat gcatgtgttg agccagtagc tttggatcaa tttttttggt cgaataacaa 2007
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acctagctag cttgaatgtg tctgtgtata tcatctatat aggtaaaatg cttggtaga 2127
tacctattga ttgtgaatag g tac gca acg gga gag cac cca cag gga tca 2178
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser
120 125

gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat 2226
Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp
130 135 140

ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa 2274
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu
145 150 155 160

cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg gct tcg 2322
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Ala Ser
165 170 175

gaa gaa gga caa gtg atc gcc tgc cac acc gtt gag aca tgg aac gag 2370
Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr Trp Asn Glu
180 185 190

cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg gtt gat ttc 2418
Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val Asp Phe
195 200 205

acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca ttc ttt gct 2466
Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala
210 215 220

gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag gtt gat act 2514
Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val Asp Thr
225 230 235 240

gat gaa ttg aag tgc gtg gca agt gat tgg gcg ata cag gcg atg cca 2562
Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala Met Pro
245 250 255

acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa gtt gtt gga 2610
Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val Val Gly
260 265 270

gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac ttg gct taa 2658
Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu Ala *
275 280 285

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aatttggggt gtcttggttg ctgcataatt tatgcagtaa aacactacac ataacccttt 3729
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aaagaataaaa taaaataaaaa tgagacactt cagggatggt tcaaccctta tacaaaaccc 3849
caaaaacaag tttcctagca ccctaccaac taaggtacc 3888

<210> 17
<211> 118
<212> PRT
<213> Artificial sequence

<400> 17
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Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
35 40 45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
50 55 60
Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
65 70 75 80
Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
85 90 95
Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
100 105 110
Phe Ser Trp Ile Tyr Lys
115

<210> 18
<211> 169
<212> PRT
<213> Artificial sequence

<400> 18
Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
1 5 10 15
Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
20 25 30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
35 40 45
Arg Gly Gly Gln His Thr Thr Met Ala Ser Glu Glu Gly Gln Val Ile
50 55 60
Ala Cys His Thr Val Glu Thr Trp Asn Glu Gln Leu Gln Lys Ala Asn
65 70 75 80
Glu Ser Lys Thr Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly
85 90 95
Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala Lys Lys Leu
100 105 110
Pro Asn Val Leu Phe Leu Lys Val Asp Thr Asp Glu Leu Lys Ser Val
115 120 125
Ala Ser Asp Trp Ala Ile Gln Ala Met Pro Thr Phe Met Phe Leu Lys
130 135 140
Glu Gly Lys Ile Leu Asp Lys Val Val Gly Ala Lys Lys Asp Glu Leu
145 150 155 160
Gln Ser Thr Ile Ala Lys His Leu Ala
165

<210> 19
<211> 3888
<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric

<221> CDS
<222> (1555)...(2249)

<221> CDS
<222> (2490) ... (2658)

<400> 19

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ttacttggtta ctttaatttc tcataatcct tgggttgaaat tatcacgctt ccgcacacga 180
tatccctaca aatttattat ttgttaaaca ttttcaaacc gcataaaaatt ttatgaagtc 240
ccgtctatct ttaatgtagt ctaacatttt catattgaaa tatataaatt acttaatttt 300
agcgttggtg gaaagcataa tgattttatt ttattcttct tcatataaat gtttaatata 360
caatataaac aaattcttta ccttaagaag gatttcccat tttatatatt aaaaatatat 420
ttatcaaaata tttttcaacc acgtaaatct cataataata agttgtttca aaagtaataa 480
aatttaactc cataattttt ttattcgact gatcttaaag caacaccagc tgacacaact 540
agccattttt ttctttgaaat aaaaaaatcc aattatcatt gtattttttt tatacaatga 600
aaatttccacc aaacaatcat ttgtggtatt tctgaagcaa gtcagtgtat gcaaaattct 660
ataattccca tttgacacta cggaagtaac tgaagatctg cttttacatg cgagacacat 720
cttctaaagt aatttttaata atagttaacta tattcaagat ttcatatata aaataactca 780
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agttttaaag aaatataagt aatgtagtag agtgtagtag tgttacccta aaccataaac 960
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actactctac tactataata ccccaaccca actcatattc aatactactc tact atg 1557

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Met
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gct tgc gaa gaa gga caa gtg atc gcc tgc cac acc gtt gag aca tgg 1605
Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr Trp
5 10 15

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aac gag cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg gtt 1653
Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val
20 25 30

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gat ttc acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca ttc 1701
Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe
35 40 45

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ttt gct gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag gtt 1749
Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val
50 55 60 65

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gat act gat gaa ttg aag tgc gtg gca agt gat tgg gcg ata cag gcg 1797
Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala
70 75 80

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atg cca acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa gtt 1845
Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val
85 90 95

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gtt gga gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac ttg 1893
Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu
100 105 110

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gct atg gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga 1941
Ala Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg
115 120 125

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gac cag tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc 1989
Asp Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser

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Gly Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala	150	155	160	
act gct gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc				2085
Thr Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr	165	170	175	
ctt gtt gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt				2133
Leu Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val	180	185	190	
atc ttc agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc				2181
Ile Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu	195	200	205	
atc acc ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc				2229
Ile Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr	210	215	220	225
ggt ttc tct tgg att tac aa gtaagcacac atttatcatc ttacttcata				2279
Val Phe Ser Trp Ile Tyr Lys	230			
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acgaaatttg acctagctag cttgaatgtg tctgtgtata tcatctatat aggtaaaaatg				2459
cttgggtatga tacctattga ttgtgaatag g tac gca acg gga gag cac cca				2511
		Tyr Ala Thr Gly Glu His Pro		
		235		
cag gga tca gac aag ttg gac agt gca agg atg aag ttg gga agc aaa				2559
Gln Gly Ser Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys	240	245	250	255
gct cag gat ctg aaa gac aga gct cag tac tac gga cag caa cat act				2607
Ala Gln Asp Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr	260	265	270	
ggt ggg gaa cat gac cgt gac cgt act cgt ggt ggc cag cac act act				2655
Gly Gly Glu His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr	275	280	285	
taa gcttaataag tatgaactaa aatgcatgta ggtgtaagag ctcatggaga				2708
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ttagcagtag agcaatgggt gaccgtgtgc ttagcttctt ttattttatt tttttatcag				3788

caaagaataa ataaaataaa atgagacact tcagggatgt ttcaaccctt atacaaaacc 3848
 ccaaaaaaaa gtttcctagc accctaccaa ctaagggtacc 3888

<210> 20
 <211> 232
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Chimeric

<400> 20
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 Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
 50 55 60
 Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
 65 70 75 80
 Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
 85 90 95
 Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
 100 105 110
 Leu Ala Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly
 115 120 125
 Arg Asp Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met
 130 135 140
 Ser Gly Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala
 145 150 155 160
 Ala Thr Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu
 165 170 175
 Thr Leu Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu
 180 185 190
 Val Ile Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu
 195 200 205
 Leu Ile Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile
 210 215 220
 Thr Val Phe Ser Trp Ile Tyr Lys
 225 230

<210> 21
 <211> 55
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Chimeric

<400> 21
 Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
 1 5 10 15
 Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
 20 25 30
 Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
 35 40 45
 Arg Gly Gly Gln His Thr Thr
 50 55

<210> 22
 <211> 3787
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Chimeric

<221> CDS

<222> (1555) ... (2556)

<400> 22

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tatccctaca aatttattat ttgttaaaca ttttcaaacc gcataaaatt ttatgaagtc 240
ccgtctatct ttaatgtagt ctaacatttt catattgaaa tatataattt acttaatttt 300
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actactctac tactataata cccaaccca actcatattc aatactactc tact atg 1557
Met
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aat ggt ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc 1605
Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly
5 10 15
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cca gcg gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa 1653
Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys
20 25 30
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cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt 1701
Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly Gly
35 40 45
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caa cta aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca gaa 1749
Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu
50 55 60 65
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ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag 1797
Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu
70 75 80
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cga ttc ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc 1845
Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe
85 90 95
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tct tcg aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct 1893
Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala
100 105 110
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gac gct gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc 1941
Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe
115 120 125
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gtt gga tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc 1989
 Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile Ser
 130 135 140 145
 gct tgt gct gtt tgc gac gga gct gct ccg ata ttc cgt aac aaa cct 2037
 Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro
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 ctt gcg gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac ttt 2085
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 Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp Ala
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 Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly
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 Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly
 230 235 240
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 Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His
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 Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp
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 Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly
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 act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac 2517
 Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr
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 Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp *
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 aaggatttaa aataataata aataataaat aacatataat atatgtatat aaatttata 3286
 taatataaca tttatctata aaaaagttaa tattgtcata aatctataca atcgtttagc 3346
 cttgctggac gactctcaat tatttaaacy agagtaaaca tatttgactt tttggttatt 3406

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tcaggtcggg gacaacaaaa aaacaggcaa gggaaatttt ttaatttggg ttgtcttggt 3586
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tgaccgtgtg cttagcttct tttattttat ttttttatca gcaaagaata aataaaaataa 3706
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 <213> Artificial Sequence

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 <223> Chimeric

<400> 23

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Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly	35	40	45	
Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	50	55	60	
Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	65	70	75	80
Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	85	90	95	
Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	100	105	110	
Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser	115	120	125	
Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile	130	135	140	
Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	145	150	155	160
Pro	Leu	Ala	Val	Ile	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn		165	170	175	
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp	180	185	190	
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	195	200	205	
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	210	215	220	
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	225	230	235	240
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	245	250	255	
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	260	265	270	
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	275	280	285	
Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	290	295	300	
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His	305	310	315	320
Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp				325	330		

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<220>

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<223> Chimeric

<400> 24

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caatataaac aaattcttta ccttaagaag gattttcccat tttatatttt aaaaatataat 420
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catgtatgtc taaatgccat gcaagcaaac acgtgcttaa catgcacttt aaatggctca 1260
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actactctac tactataata ccccaaccca actcatattc aataactact tact atg 1557
Met
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gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1605
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5 10 15

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tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1653
Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
20 25 30

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gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1701
Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
35 40 45

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gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1749
Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
50 55 60 65

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gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1797
Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
70 75 80

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agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1845
Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
85 90 95

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```

ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1893
Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
100 105 110

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tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttgtgca 1947

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Ser Trp Ile Tyr Lys
115

atatgtgcat gcatgtgttg agccagtagc tttggatcaa tttttttggt cgaataacaa 2007
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acctagctag cttgaatgtg tctgtgtata tcatctatat aggtaaaaatg cttgggtatga 2127
tacctattga ttgtgaatag g tac gca acg gga gag cac cca cag gga tca 2178

Tyr Ala Thr Gly Glu His Pro Gln Gly Ser
120 125

gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat 2226
Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp
130 135 140

ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa 2274
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu
145 150 155 160

cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aat ggt 2322
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Gly
165 170 175

ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc cca gcg 2370
Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly Pro Ala
180 185 190

gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa cct ctt 2418
Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu
195 200 205

ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt caa cta 2466
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210 215 220

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Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile
225 230 235 240

ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag cga ttc 2562
Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu Arg Phe
245 250 255

ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc tct tcg 2610
Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe Ser Ser
260 265 270

aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct gac gct 2658
Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala Asp Ala
275 280 285

gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc gtt gga 2706
Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe Val Gly
290 295 300

tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc gct tgt 2754
Ser Gly Glu Gly Ser Gly Phe Trp Asn Arg Gly Ile Ser Ala Cys
305 310 315 320

gct gtt tgc gac gga gct gct ccg ata ttc cgt aac aaa cct ctt gcg 2802
Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro Leu Ala
325 330 335

gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac ttt ctt aca 2850
Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe Leu Thr
340 345 350

aaa tat gga tct aaa gtg tat ata atc cat agg aga gat gct ttt aga 2898

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Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	
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Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	
		435					440					445				
gtt	gtc	acg	aag	cct	ggg	act	aca	cag	act	agc	gtt	ccc	gga	gtt	ttc	3186
Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe	
		450				455					460					
gct	gcg	ggg	gat	gtt	cag	gat	aag	aag	tat	agg	caa	gcc	atc	act	gct	3234
Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	
		465			470				475						480	
gca	gga	act	ggg	tgc	atg	gca	gct	ttg	gat	gca	gag	cat	tac	tta	caa	3282
Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	Leu	Gln	
				485					490					495		
gag	att	gga	tct	cag	caa	ggg	aag	agt	gat	tga	agcttaataa	gtatgaacta				3335
Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp	*						
			500					505								

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Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
          35          40          45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
          50          55          60
Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
65          70          75          80
Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
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Phe Ser Trp Ile Tyr Lys
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<223> Chimeric

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Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
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Arg Gly Gly Gln His Thr Thr Met Asn Gly Leu Glu Thr His Asn Thr
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Arg Leu Cys Ile Val Gly Ser Gly Pro Ala Ala His Thr Ala Ala Ile
65          70          75          80
Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu Leu Phe Glu Gly Trp Met
          85          90          95
Ala Asn Asp Ile Ala Pro Gly Gly Gln Leu Thr Thr Thr Thr Asp Val
          100          105          110
Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile Leu Gly Val Glu Leu Thr
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Asp Lys Phe Arg Lys Gln Ser Glu Arg Phe Gly Thr Thr Ile Phe Thr
          130          135          140
Glu Thr Val Thr Lys Val Asp Phe Ser Ser Lys Pro Phe Lys Leu Phe
145          150          155          160
Thr Asp Ser Lys Ala Ile Leu Ala Asp Ala Val Ile Leu Ala Thr Gly
          165          170          175
Ala Val Ala Lys Arg Leu Ser Phe Val Gly Ser Gly Glu Gly Ser Gly
          180          185          190
Gly Phe Trp Asn Arg Gly Ile Ser Ala Cys Ala Val Cys Asp Gly Ala
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Ala Pro Ile Phe Arg Asn Lys Pro Leu Ala Val Ile Gly Gly Gly Asp
          210          215          220
Ser Ala Met Glu Glu Ala Asn Phe Leu Thr Lys Tyr Gly Ser Lys Val
225          230          235          240
Tyr Ile Ile His Arg Arg Asp Ala Phe Arg Ala Ser Lys Ile Met Gln
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Gln Arg Ala Leu Ser Asn Pro Lys Ile Asp Val Ile Trp Asn Ser Ser
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Val Val Glu Ala Tyr Gly Asp Gly Glu Arg Asp Val Leu Gly Gly Leu
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Lys Val Lys Asn Val Val Thr Gly Asp Val Ser Asp Leu Lys Val Ser
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 Thr Thr Gln Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln
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 Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln Tyr Pro Met
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Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	50	55	60	
Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	65	70	75	80
Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	85	90	95	
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Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser	115	120	125	
Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile	130	135	140	
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Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	165	170	175	
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp	180	185	190	
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	195	200	205	
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	210	215	220	
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	225	230	235	240
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	245	250	255	
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	260	265	270	
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Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	290	295	300	
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His	305	310	315	320
Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp	Met	Ala	Asp	325	330	335	
Thr	Ala	Arg	Gly	Thr	His	His	Asp	Ile	Ile	Gly	Arg	Asp	Gln	Tyr	Pro				

Age	Sex	Height (cm)	Weight (kg)	Body mass index (kg/m ²)	Waist circumference (cm)	Hip circumference (cm)	Waist-hip ratio	Waist-to-height ratio
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25	F	160	60	23.4	85	95	0.89	0.50
30	M	175	80	25.7	95	105	0.90	0.46
35	F	165	65	23.9	90	100	0.90	0.49
40	M	180	85	27.1	100	110	0.91	0.44
45	F	170	70	24.4	95	105	0.90	0.48
50	M	185	90	26.5	105	115	0.91	0.43
55	F	175	75	24.2	100	110	0.91	0.46
60	M	190	95	26.3	110	120	0.92	0.42
65	F	180	80	24.7	105	115	0.91	0.45
70	M	195	100	26.2	115	125	0.92	0.41
75	F	185	85	24.3	110	120	0.92	0.44
80	M	200	105	26.3	120	130	0.93	0.40
85	F	190	90	24.7	115	125	0.92	0.43
90	M	205	110	26.3	125	135	0.93	0.39
95	F	195	95	24.6	120	130	0.93	0.42
100	M	210	115	26.2	130	140	0.93	0.38
105	F	200	100	25.0	125	135	0.93	0.41
110	M	215	120	26.0	135	145	0.93	0.37
115	F	205	105	25.4	130	140	0.93	0.40
120	M	220	125	26.1	140	150	0.93	0.36
125	F	210	110	24.8	135	145	0.93	0.39
130	M	225	130	26.2	145	155	0.93	0.35
135	F	215	115	24.9	140	150	0.93	0.38
140	M	230	135	26.1	150	160	0.93	0.34
145	F	220	120	24.5	145	155	0.93	0.37
150	M	235	140	26.0	155	165	0.93	0.33
155	F	225	125	24.4	150	160	0.93	0.36
160	M	240	145	26.0	160	170	0.93	0.32
165	F	230	130	24.3	155	165	0.93	0.35
170	M	245	150	26.1	165	175	0.93	0.31
175	F	235	135	24.2	160	170	0.93	0.34
180	M	250	155	26.0	170	180	0.93	0.30
185	F	240	140	24.1	165	175	0.93	0.33
190	M	255	160	26.0	175	185	0.93	0.29
195	F	245	145	24.0	170	180	0.93	0.32
200	M	260	165	26.0	180	190	0.93	0.28
205	F	250	150	23.9	175	185	0.93	0.31
210	M	265	170	26.0	185	195	0.93	0.27
215	F	255	155	23.8	180	190	0.93	0.30
220	M	270	175	26.0	190	200	0.93	0.26
225	F	260	160	23.7	185	195	0.93	0.29
230	M	275	180	26.0	195	205	0.93	0.25
235	F	265	165	23.6	190	200	0.93	0.28
240	M	280	185	26.0	200	210	0.93	0.24
245	F	270	170	23.5	195			

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<212> DNA
<213> Artificial Sequence
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atgcatggat	gcttgcgcaa	gaaaaagaca	aagaacaaag	aaaaaagaca	aaacagagag	1140
acaaaacgca	atcacacaac	caactcaa	tagtcactgg	ctgatcaaga	tcgccgcgtc	1200
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Met
1

gcg	gat	aca	gct	aga	gga	acc	cat	cac	gat	atc	atc	ggc	aga	gac	cag	1605
Ala	Asp	Thr	Ala	Arg	Gly	Thr	His	His	Asp	Ile	Ile	Gly	Arg	Asp	Gln	
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tac	ccg	atg	atg	ggc	cga	gac	cga	gac	cag	tac	cag	atg	tcc	gga	cga	1653
Tyr	Pro	Met	Met	Gly	Arg	Asp	Arg	Asp	Gln	Tyr	Gln	Met	Ser	Gly	Arg	
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gga	tct	gac	tac	tcc	aag	tct	agg	cag	att	gct	aaa	gct	gca	act	gct	1701
Gly	Ser	Asp	Tyr	Ser	Lys	Ser	Arg	Gln	Ile	Ala	Lys	Ala	Ala	Thr	Ala	
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gtc	aca	gct	ggg	ggg	tcc	ctc	ctt	gtt	ctc	tcc	agc	ctt	acc	ctt	gtt	1749
Val	Thr	Ala	Gly	Gly	Ser	Leu	Leu	Val	Leu	Ser	Ser	Leu	Thr	Leu	Val	
		50			55					60					65	

gga	act	gtc	ata	gct	ttg	act	gtt	gca	aca	cct	ctg	ctc	gtt	atc	ttc	1797
Gly	Thr	Val	Ile	Ala	Leu	Thr	Val	Ala	Thr	Pro	Leu	Leu	Val	Ile	Phe	
			70					75						80		

agc	cca	atc	ctt	gtc	ccg	gct	ctc	atc	aca	gtt	gca	ctc	ctc	atc	acc	1845
Ser	Pro	Ile	Leu	Val	Pro	Ala	Leu	Ile	Thr	Val	Ala	Leu	Leu	Ile	Thr	
			85					90					95			

ggg	ttt	ctt	tcc	tct	gga	ggg	ttt	ggc	att	gcc	gct	ata	acc	gtt	ttc	1893
Gly	Phe	Leu	Ser	Ser	Gly	Gly	Phe	Gly	Ile	Ala	Ala	Ile	Thr	Val	Phe	
		100					105					110				

tct	tgg	att	tac	aa	gtaagcacac	atttatcatc	ttacttcata	attttgtgca	1947
Ser	Trp	Ile	Tyr	Lys					
		115							

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atgtaacaat	aagaaattgc	aaattctagg	gaacatttgg	ttactaaat	acgaaatttg	2067
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tacctattga	ttgtgaatag	g tac	gca acg gga gag	cac cca cag gga tca		2178
			Tyr Ala Thr Gly Glu His	Pro Gln Gly Ser		
			120	125		

gac	aag	ttg	gac	agt	gca	agg	atg	aag	ttg	gga	agc	aaa	gct	cag	gat	2226
Asp	Lys	Leu	Asp	Ser	Ala	Arg	Met	Lys	Leu	Gly	Ser	Lys	Ala	Gln	Asp	
		130				135					140					

ctg	aaa	gac	aga	gct	cag	tac	tac	gga	cag	caa	cat	act	ggg	ggg	gaa	2274
Leu	Lys	Asp	Arg	Ala	Gln	Tyr	Tyr	Gly	Gln	Gln	His	Thr	Gly	Gly	Glu	
		145			150				155						160	

cat	gac	cgt	gac	cgt	act	cgt	ggg	ggc	cag	cac	act	acc	atg	aac	acc	2322
His	Asp	Arg	Asp	Arg	Thr	Arg	Gly	Gly	Gln	His	Thr	Thr	Met	Asn	Thr	
				165				170						175		

act	cct	tct	gcg	cat	gag	acg	ata	cac	gaa	gtg	atc	gtt	att	ggc	tcc	2370
Thr	Pro	Ser	Ala	His	Glu	Thr	Ile	His	Glu	Val	Ile	Val	Ile	Gly	Ser	
			180					185						190		

ggt cca gca ggc tac act gct gcc ctg tac gcc gct cgt gca cag cta	2418
Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg Ala Gln Leu	
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Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala Leu Met Thr	
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acc acc gag gtg gaa aac tac cca ggt ttt cgc aac ggc ata acc ggc	2514
Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly Ile Thr Gly	
225 230 235 240	
ccg gag ttg atg gac gat atg cgt gaa cag gca ctg cga ttc ggc gcg	2562
Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg Phe Gly Ala	
245 250 255	
gaa ctg cgg acc gaa gac gtc gag tcc gta tca ttg cgt ggc ccg atc	2610
Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg Gly Pro Ile	
260 265 270	
aaa tcc gtc gtc acc gct gaa gga cag act tat cag gcc cga gcc gtc	2658
Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala Arg Ala Val	
275 280 285	
atc ctc gcc atg ggt acc tcc gtg cgt tat cta cag atc ccc ggc gag	2706
Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile Pro Gly Glu	
290 295 300	
caa gaa ttg cta gga cgt ggc gtg agt gca tgc gcg acc tgc gac ggg	2754
Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly	
305 310 315 320	
tcc ttt ttc cgc ggc caa gac att gcc gtc att ggc ggt gga gac tca	2802
Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly Gly Asp Ser	
325 330 335	
gcg atg gag gaa gcc ctc ttt ttg acc cgg ttc gcc cgc agc gtc acg	2850
Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg Ser Val Thr	
340 345 350	
ctc gtg cac cgc cgc gac gaa ttc cga gct tct aag atc atg ctc ggt	2898
Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile Met Leu Gly	
355 360 365	
cgc gcc cgt aac aat gac aag atc aaa ttc atc acc aac cac acc gtg	2946
Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn His Thr Val	
370 375 380	
gtc gcg gtg aac ggg tat aca aca gtg acc gga ttg cgg ttg cgt aac	2994
Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg Leu Arg Asn	
385 390 395 400	
acc aca acg gga gag gaa acc acg cta gta gtg acc ggg gtt ttt gtt	3042
Thr Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly Val Phe Val	
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Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp Val Val Asp	
420 425 430	
ata gac ccg gat ggc tac gtc ctg gtg aaa gga cgt acg acg agt aca	3138
Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr Thr Ser Thr	
435 440 445	
tcc atg gac ggc gtt ttt gcg gcc ggc gac ctg gta gat cgc acc tac	3186
Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp Arg Thr Tyr	

450	455	460	
cgg cag gcg atc act gcc gca ggt agt ggc tgt gcc gcc gcc atc gac 3234			
Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala Ala Ile Asp			
465	470	475	480
gcc gaa cgt tgg ttg gcg gag cat gcc ggg tca aaa gct aac gaa aca 3282			
Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala Asn Glu Thr			
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aca gag gaa act gga gac gtt gac agt acc gac aca acc gat tgg agc 3330			
Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr Asp Trp Ser			
	500	505	510
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Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile Glu Val Thr			
	515	520	525
gat gct tcc ttt ttc gca gac gtc tta tcc agt aat aag cct gtg tta 3426			
Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys Pro Val Leu			
	530	535	540
gtt gat ttt tgg gca aca tgg tgt gga ccc tgc aag atg gta gcg ccg 3474			
Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met Val Ala Pro			
	545	550	555
gta ctc gaa gag atc gcg tcc gaa caa cga aac cag ctc act gtc gcc 3522			
Val Leu Glu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu Thr Val Ala			
	565	570	575
aag tta gat gta gac acc aac ccg gaa atg gca cgc gag ttc cag gtc 3570			
Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu Phe Gln Val			
	580	585	590
gtg tcg ata ccc aca atg att ctg ttc cag ggt ggc caa cca gta aaa 3618			
Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln Pro Val Lys			
	595	600	605
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Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg Asp Leu Ser			
	610	615	620
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Asp Val Val Pro Asn Leu Asn *			
625	630		
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<220>
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 Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
 35 40 45
 Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
 50 55 60
 Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
 65 70 75 80
 Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
 85 90 95
 Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
 100 105 110
 Phe Ser Trp Ile Tyr Lys
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<210> 32
 <211> 513
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Chimeric

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 Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
 20 25 30
 Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
 35 40 45
 Arg Gly Gly Gln His Thr Thr Met Asn Thr Thr Pro Ser Ala His Glu
 50 55 60
 Thr Ile His Glu Val Ile Val Ile Gly Ser Gly Pro Ala Gly Tyr Thr
 65 70 75 80
 Ala Ala Leu Tyr Ala Ala Arg Ala Gln Leu Thr Pro Leu Val Phe Glu
 85 90 95
 Gly Thr Ser Phe Gly Gly Ala Leu Met Thr Thr Thr Glu Val Glu Asn
 100 105 110
 Tyr Pro Gly Phe Arg Asn Gly Ile Thr Gly Pro Glu Leu Met Asp Asp
 115 120 125
 Met Arg Glu Gln Ala Leu Arg Phe Gly Ala Glu Leu Arg Thr Glu Asp
 130 135 140
 Val Glu Ser Val Ser Leu Arg Gly Pro Ile Lys Ser Val Val Thr Ala
 145 150 155 160
 Glu Gly Gln Thr Tyr Gln Ala Arg Ala Val Ile Leu Ala Met Gly Thr
 165 170 175
 Ser Val Arg Tyr Leu Gln Ile Pro Gly Glu Gln Glu Leu Leu Gly Arg
 180 185 190
 Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Ser Phe Phe Arg Gly Gln
 195 200 205
 Asp Ile Ala Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Leu
 210 215 220
 Phe Leu Thr Arg Phe Ala Arg Ser Val Thr Leu Val His Arg Arg Asp
 225 230 235 240
 Glu Phe Arg Ala Ser Lys Ile Met Leu Gly Arg Ala Arg Asn Asn Asp

Lys	Ile	Lys	Phe	Ile	Thr	Asn	His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr
			260					265					270		
Thr	Thr	Val	Thr	Gly	Leu	Arg	Leu	Arg	Asn	Thr	Thr	Thr	Gly	Glu	Glu
		275					280					285			
Thr	Thr	Leu	Val	Val	Thr	Gly	Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro
	290				295					300					
Arg	Ser	Ser	Leu	Val	Ser	Asp	Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr
305					310					315					320
Val	Leu	Val	Lys	Gly	Arg	Thr	Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe
			325						330					335	
Ala	Ala	Gly	Asp	Leu	Val	Asp	Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala
		340						345					350		
Ala	Gly	Ser	Gly	Cys	Ala	Ala	Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala
	355						360					365			
Glu	His	Ala	Gly	Ser	Lys	Ala	Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp
	370						375				380				
Val	Asp	Ser	Thr	Asp	Thr	Asp	Trp	Ser	Thr	Thr	Ala	Met	Thr	Asp	Ala
385					390					395					400
Lys	Asn	Ala	Gly	Val	Thr	Ile	Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala
			405						410					415	
Asp	Val	Leu	Ser	Ser	Asn	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr
			420					425					430		
Trp	Cys	Gly	Pro	Cys	Lys	Met	Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala
		435					440					445			
Ser	Glu	Gln	Arg	Asn	Gln	Leu	Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr
	450					455					460				
Asn	Pro	Glu	Met	Ala	Arg	Glu	Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met
465					470					475					480
Ile	Leu	Phe	Gln	Gly	Gly	Gln	Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys
			485						490					495	
Gly	Lys	Ala	Ala	Leu	Leu	Arg	Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu
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Asn

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 <211> 4935
 <212> DNA
 <213> Artificial Sequence

<220>
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 <222> (1554) ... (1906)

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<223> Chimeric

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 ttacttggtta ctttaatttc tcataatcct tgggtgaaat tatcacgctt ccgcacacga 180
 tatccctaca aattttattat ttgttaaaca ttttcaaacc gcataaaatt ttatgaagtc 240
 ccgtctatct ttaagttagt ctaacatttt catattgaaa tatataattt acttaatttt 300
 agcgttggtta gaaagcataa agattttatt ttattcttct tcatataaat gttaataata 360
 caatataaac aaattccttta ccttaagaag gatttcccat tttatatttt aaaaatatat 420
 ttatcaaata tttttcaacc acgtaaatct cataataata agttggttca aaagtaataa 480
 aatttaactc cataattttt ttattcgact gatcttaaag caacaccag tgacacaact 540
 agccattttt ttctttgaat aaaaaaatcc aattatcatt gtattttttt tatacaatga 600
 aaatttcacc aaacaatcat ttgtggtatt tctgaagcaa gtcattgttat gcaaaattct 660
 ataattccca tttgacacta cggaagtaac tgaagatctg cttttacatg cgagacacat 720
 cttctaagat aattttaata atagttacta tattcaagat ttcatatatc aaataactca 780
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agtttaaagt aaatataagt aatgtagtag agtgtagag tgttacccta aaccataaac 960
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 caaaacgcaa tcacacaacc aactcaaatt agtcaactggc tgatcaagat cgccgcgtcc 1200
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 ctactctact actataatac cccaacccaa ctcattattca atactactct act atg 1556

Met

1

gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1604
 Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln
 5 10 15

tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1652
 Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
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gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1700
 Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
 35 40 45

gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1748
 Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
 50 55 60 65

gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1796
 Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
 70 75 80

agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1844
 Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
 85 90 95

ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1892
 Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
 100 105 110

tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttgtgca 1946
 Ser Trp Ile Tyr Lys
 115

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 acctagctag cttgaatgtg tctgtgtata tcatctatat aggtaaaatg cttgggtatga 2126
 tacctattga ttgtgaatag g tac gca acg gga gag cac cca cag gga tca 2177
 Tyr Ala Thr Gly Glu His Pro Gln Gly Ser
 120 125

gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat 2225
 Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp
 130 135 140

ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa 2273
 Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu
 145 150 155 160

cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aat ggt 2321
 His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Gly
 165 170 175

ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc cca gcg 2369
 Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly Pro Ala

180				185				190								
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Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu	Lys	Pro	Leu	
		195					200					205				
ctc	ttc	gaa	gga	tgg	atg	gct	aac	gac	atc	gct	ccc	ggt	ggt	caa	cta	2465
Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly	Gly	Gln	Leu	
	210					215					220					
aca	acc	acc	acc	gac	gtc	gag	aat	ttc	ccc	gga	ttt	cca	gaa	ggt	att	2513
Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu	Gly	Ile	
225					230					235					240	
ctc	gga	gta	gag	ctc	act	gac	aaa	ttc	cgt	aaa	caa	tcg	gag	cga	ttc	2561
Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu	Arg	Phe	
			245						250					255		
ggt	act	acg	ata	ttt	aca	gag	acg	gtg	acg	aaa	gtc	gat	ttc	tct	tcg	2609
Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	Phe	Ser	Ser	
			260						265				270			
aaa	ccg	ttt	aag	cta	ttc	aca	gat	tca	aaa	gcc	att	ctc	gct	gac	gct	2657
Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala	Asp	Ala	
		275					280									
gtg	att	ctc	gct	act	gga	gct	gtg	gct	aag	cgg	ctt	agc	ttc	gtt	gga	2705
Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser	Phe	Val	Gly	
	290					295					300					
tct	ggt	gaa	ggt	tct	gga	ggt	ttc	tgg	aac	cgt	gga	atc	tcc	gct	tgt	2753
Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile	Ser	Ala	Cys	
305					310					315					320	
gct	gtt	tgc	gac	gga	gct	gct	ccg	ata	ttc	cgt	aac	aaa	cct	ctt	gcg	2801
Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro	Leu	Ala	
			325						330					335		
gtg	atc	ggt	gga	ggc	gat	tca	gca	atg	gaa	gaa	gca	aac	ttt	ctt	aca	2849
Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe	Leu	Thr	
			340						345				350			
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Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp	Ala	Phe	Arg	
		355					360					365				
gcg	tct	aag	att	atg	cag	cag	cga	gct	ttg	tct	aat	cct	aag	att	gat	2945
Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp	
		370				375					380					
gtg	att	tgg	aac	tcg	tct	gtt	gtg	gaa	gct	tat	gga	gat	gga	gaa	aga	2993
Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg	
385					390					395				400		
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Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val	
			405						410					415		
tct	gat	tta	aaa	gtt	tct	gga	ttg	ttc	ttt	gct	att	ggt	cat	gag	cca	3089
Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	
			420				425						430			
gct	acc	aag	ttt	ttg	gat	ggt	ggt	gtt	gag	tta	gat	tcg	gat	ggt	tat	3137
Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	
		435				440						445				
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Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe					
450						455					460									
gct	gcg	ggt	gat	gtt	cag	gat	aag	aag	tat	agg	caa	gcc	atc	act	gct	3233				
Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala					
465					470					475					480					
gca	gga	act	ggg	tgc	atg	gca	gct	ttg	gat	gca	gag	cat	tac	tta	caa	3281				
Ala	Gly	Thr	Gly		Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr		Gln					
				485					490						495					
gag	att	gct	gga	tcg	aag	gct	aac	gag	acc	acc	gag	gaa	act	gga	gat	3329				
Glu	Ile	Ala		Gly	Ser	Lys	Ala	Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly					
				500					505					510	Asp					
gtt	gac	tcg	acg	gat	act	acg	gat	tgg	tcg	acg	gct	atg	gaa	gaa	gga	3377				
Val	Asp	Ser	Thr	Asp	Thr	Thr	Asp	Trp	Ser	Thr	Ala	Met	Glu	Glu	Gly					
		515					520					525								
caa	gtg	atc	gcc	tgc	cac	acc	gtt	gag	aca	tgg	aac	gag	cag	ctt	cag	3425				
Gln	Val	Ile	Ala	Cys	His	Thr	Val	Glu	Thr	Trp	Asn	Glu	Gln	Leu	Gln					
						535					540									
aag	gct	aat	gaa	tcc	aaa	act	ctt	gtg	gtg	gtt	gat	ttc	acg	gct	tct	3473				
Lys	Ala	Asn	Glu	Ser	Lys	Thr	Leu	Val	Val	Val	Asp	Phe	Thr	Ala	Ser					
545					550					555					560					
tgg	tgt	gga	cca	tgt	cgt	ttc	atc	gct	cca	ttc	ttt	gct	gat	ttg	gct	3521				
Trp	Cys	Gly	Pro	Cys	Arg	Phe	Ile	Ala	Pro	Phe	Phe	Ala	Asp	Leu	Ala					
				565					570						575					
aag	aaa	ctt	cct	aac	gtg	ctt	ttc	ctc	aag	gtt	gat	act	gat	gaa	ttg	3569				
Lys	Lys	Leu	Pro	Asn	Val	Leu	Phe	Leu	Lys	Val	Asp	Thr	Asp	Glu	Leu					
			580					585						590						
aag	tcg	gtg	gca	agt	gat	tgg	gcg	ata	cag	gcg	atg	cca	acc	ttc	atg	3617				
Lys	Ser	Val	Ala	Ser	Asp	Trp	Ala	Ile	Gln	Ala	Met	Pro	Thr	Phe	Met					
			595				600					605								
ttt	ttg	aag	gaa	ggg	aag	att	ttg	gac	aaa	gtt	gtt	gga	gcc	aag	aaa	3665				
Phe	Leu	Lys	Glu	Gly	Lys	Ile	Leu	Asp	Lys	Val	Val	Gly	Ala	Lys	Lys					
			610			615					620									
gat	gag	ctt	cag	tct	acc	att	gcc	aaa	cac	ttg	gct	taagcttaaa				3711				
Asp	Glu	Leu	Gln	Ser		Ile	Ala	Lys	His	Leu	Ala									
625					630					635										
taagt	atg	gaa	ctaaa	atg	gca	tgt	aggt	gtg	ta	agag	ctcat	gag	agc	atg	aat	att	gtat	3771		
ccg	acc	atg	aac	agt	tata	ta	act	gag	ct	cat	ctc	act	tct	tct	atg	ata	aa	caa	3831	
gat	gtt	atg	tata	ttata	aca	ct	tat	ctat	gc	ac	ctt	tatt	gtt	ctat	gat	aa	att	tct	3891	
ttatt	tatt	at	aat	cat	ctg	aat	cgt	gac	g	ctt	atg	gaa	tg	ctt	caa	at	gt	ac	aaaa	3951
caaat	gtg	ta	ctata	ag	act	tt	ctata	ac	aa	tt	ctaa	cttt	ag	catt	gtg	ac	gag	ac	ata	4011
agt	gtt	aa	ga	acata	aca	att	tata	aat	gg	aaga	agt	ttg	t	ctcc	att	tata	att	ata	tata	4071
att	acc	ca	tat	gt	tatt	att	agg	gat	gt	ta	agg	ag	aca	ta	att	at	aa	gag	ag	4131
gtt	gt	at	cc	tata	tata	tata	tata	ctac	cc	att	tata	tata	att	tata	ctta	tcc	act	tatt	ata	4191
ta	at	gt	ct	ttt	ata	agg	ttt	g	at	ccat	gata	ttt	ct	aat	ata	at	gt	tata	ta	4251
aag	gt	tact	ata	ga	act	ct	tact	ct	gt	ata	aa	agg	ttg	gat	cat	cct	aa	agt	gg	4311
tatt	ta	att	tatt	gct	tt	tac	agata	aaa	aaaa	aa	ta	ta	ttg	tg	agt	tg	gt	tata	aaa	4371
ttg	agg	gatt	taaa	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	ata	4431
ttata	atata	acatt	ttat	ct	ata	aaaa	aa	agt	aa	at	att	gtc	ata	aat	ct	ata	aat	cg	ttt	4491
agc	ctt	gct	gac	gact	ctc	aatt	att	ttta	ac	gag	ag	tta	ac	ata	att	ttg	ctt	ttt	gg	4551
att	ta	ac	aaa	ttatt	att	ta	att	att	ta	ac	act	ata	tg	ttt	at	ctg	ca	agg	aa	4611
aa	att	aa	att	agg	agg	gaca	at	gg	gt	gt	gtc	cca	at	cct	ta	taca	ac	ca	ag	4671
agg	tc	agg	tc	ggg	gaca	aca	aaaa	ac	agg	ca	agg	gaa	at	ttt	ta	att	gg	gt	gt	4731
ggt	tg	ct	gca	ta	att	ttac	gc	ag	ta	ac	ata	ac	ctt	ttt	ag	ca	gt	ag	ag	4791
ggt	tg	ac	cg	gt	gct	ta	gct	ta	gct	ta	gct	ta	gct	ta	gct	ta	gct	ta	gct	4851
taaa	at	gaga	cact	tc	agg	at	gt	ttt	ca	ac	ctt	ata	ca	aa	cccc	aaaa	aca	ag	ttt	4911

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4935

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<213> Artificial Sequence

<220>
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<222> (1)...(118)
<223> oleosin

<223> Chimeric

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1 5 10 15
Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly
20 25 30
Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
35 40 45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
50 55 60
Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
65 70 75 80
Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
85 90 95
Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
100 105 110
Phe Ser Trp Ile Tyr Lys
115

<210> 35
<211> 518
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (1)...(55)
<223> oleosin

<221> SITE
<222> (56)...(383)
<223> thioredoxin reductase

<221> SITE
<222> (384)...(406)
<223> linker

<221> SITE
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<223> thioredoxin

<223> Chimeric

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Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
20 25 30
Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
35 40 45
Arg Gly Gly Gln His Thr Thr Met Asn Gly Leu Glu Thr His Asn Thr
50 55 60
Arg Leu Cys Ile Val Gly Ser Gly Pro Ala Ala His Thr Ala Ala Ile

65					70					75					80
Tyr	Ala	Ala	Arg	Ala	Glu	Leu	Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met
				85					90					95	
Ala	Asn	Asp	Ile	Ala	Pro	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val
			100					105					110		
Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr
		115					120					125			
Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr
	130					135					140				
Glu	Thr	Val	Thr	Lys	Val	Asp	Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe
	145				150					155				160	
Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly
			165						170					175	
Ala	Val	Ala	Lys	Arg	Leu	Ser	Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly
			180					185					190		
Gly	Phe	Trp	Asn	Arg	Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala
	195						200					205			
Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp
	210					215					220				
Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val
	225				230					235				240	
Tyr	Ile	Ile	His	Arg	Arg	Asp	Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln
			245						250					255	
Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser
			260					265					270		
Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu
	275						280					285			
Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser
	290					295					300				
Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp
	305				310				315					320	
Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly
			325					330					335		
Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln
		340					345						350		
Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met
	355					360						365			
Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	Leu	Gln	Glu	Ile	Ala	Gly	Ser	Lys
	370					375				380					
Ala	Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr
	385				390				395					400	
Thr	Asp	Trp	Ser	Thr	Ala	Met	Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys	His
			405					410					415		
Thr	Val	Glu	Thr	Trp	Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser	Lys
		420					425						430		
Thr	Leu	Val	Val	Val	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg
	435					440					445				
Phe	Ile	Ala	Pro	Phe	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Leu	Pro	Asn	Val
	450				455					460					
Leu	Phe	Leu	Lys	Val	Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser	Asp
	465				470				475					480	
Trp	Ala	Ile	Gln	Ala	Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly	Lys
			485					490					495		
Ile	Leu	Asp	Lys	Val	Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser	Thr
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Ile	Ala	Lys	His	Leu	Ala										
		515													

<210> 36
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 36
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
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Ala	Gln	Leu	Thr	Pro	Leu	Val	Phe	Glu	Gly	Thr	Ser	Phe	Gly	Gly	Ala
		35					40					45			
Leu	Met	Thr	Thr	Thr	Glu	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Arg	Asn	Gly
	50					55					60				
Ile	Thr	Gly	Pro	Glu	Leu	Met	Asp	Asp	Met	Arg	Glu	Gln	Ala	Leu	Arg
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Phe	Gly	Ala	Glu	Leu	Arg	Thr	Glu	Asp	Val	Glu	Ser	Val	Ser	Leu	Arg
				85					90					95	
Gly	Pro	Ile	Lys	Ser	Val	Val	Thr	Ala	Glu	Gly	Gln	Thr	Tyr	Gln	Ala
			100					105						110	
Arg	Ala	Val	Ile	Leu	Ala	Met	Gly	Thr	Ser	Val	Arg	Tyr	Leu	Gln	Ile
		115					120					125			
Pro	Gly	Glu	Gln	Glu	Leu	Leu	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr
	130					135					140				
Cys	Asp	Gly	Ser	Phe	Phe	Arg	Gly	Gln	Asp	Ile	Ala	Val	Ile	Gly	Gly
145					150					155					160
Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Leu	Phe	Leu	Thr	Arg	Phe	Ala	Arg
				165					170					175	
Ser	Val	Thr	Leu	Val	His	Arg	Arg	Asp	Glu	Phe	Arg	Ala	Ser	Lys	Ile
			180					185					190		
Met	Leu	Gly	Arg	Ala	Arg	Asn	Asn	Asp	Lys	Ile	Lys	Phe	Ile	Thr	Asn
		195					200					205			
His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr	Thr	Thr	Val	Thr	Gly	Leu	Arg
	210					215					220				
Leu	Arg	Asn	Thr	Thr	Thr	Gly	Glu	Glu	Thr	Thr	Leu	Val	Val	Thr	Gly
225					230					235					240
Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Ser	Leu	Val	Ser	Asp
				245					250					255	
Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Lys	Gly	Arg	Thr
			260					265					270		
Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp
		275				280						285			
Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala
	290					295					300				
Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala
					310					315					320
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr
				325					330					335	
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile
		340						345					350		
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys
		355					360					365			
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met
	370					375					380				
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu
					390					395					400
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu
				405					410					415	
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln
				420				425					430		
Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg
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Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn						
	450					455									

<210> 37
 <211> 471
 <212> PRT
 <213> Arabidopsis thaliana

<220>
 <223> Chimeric

<400> 37

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		20						25					30		
Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly
		35					40					45			
Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro
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Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser
65					70					75				80	
Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp
				85					90					95	
Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu
			100					105					110		
Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser
		115					120					125			
Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile
	130					135					140				
Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys
145					150					155					160
Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn
				165				170						175	
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp
			180					185					190		
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro
		195					200					205			
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp
	210					215					220				
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr
225					230					235					240
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly
				245					250					255	
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser
			260					265					270		
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro
		275					280					285			
Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala
					295						300				
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His
305					310					315					320
Tyr	Leu	Gln	Glu	Ile	Ala	Gly	Ser	Lys	Ala	Asn	Glu	Thr	Thr	Glu	Glu
				325					330					335	
Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr	Asp	Trp	Ser	Thr	Ala	Met
			340					345					350		
Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys	Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys
		355					360					365			
His	Thr	Val	Glu	Thr	Trp	Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser
						375					380				
Lys	Thr	Leu	Val	Val	Val	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys
385					390					395					400
Arg	Phe	Ile	Ala	Pro	Phe	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Leu	Pro	Asn
				405					410					415	
Val	Leu	Phe	Leu	Lys	Val	Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser
				420				425					430		
Asp	Trp	Ala	Ile	Gln	Ala	Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly
		435					440					445			
Lys	Ile	Leu	Asp	Lys	Val	Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser
	450					455					460				
Thr	Ile	Ala	Lys	His	Leu	Ala									
465					470										

<210> 38
 <211> 345
 <212> DNA
 <213> Arabidopsis thaliana

<220>
 <221> CDS
 <222> (1)...(345)

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 1 5 10 15
 tgg aac gag cag ctt cag aag gct aat gaa tcc aaa act ctt gtg gtg 96
 Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
 20 25 30
 gtt gat ttc acg gct tct tgg tgt gga cca tgt cgt ttc atc gct cca 144
 Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 ttc ttt gct gat ttg gct aag aaa ctt cct aac gtg ctt ttc ctc aag 192
 Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
 50 55 60
 gtt gat act gat gaa ttg aag tcg gtg gca agt gat tgg gcg ata cag 240
 Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
 65 70 75 80
 gcg atg cca acc ttc atg ttt ttg aag gaa ggg aag att ttg gac aaa 288
 Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
 85 90 95
 gtt gtt gga gcc aag aaa gat gag ctt cag tct acc att gcc aaa cac 336
 Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
 100 105 110
 ttg gct taa 345
 Leu Ala *

<210> 39
 <211> 114
 <212> PRT
 <213> Arabidopsis thaliana

<400> 39
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 1 5 10 15
 Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
 20 25 30
 Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
 50 55 60
 Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
 65 70 75 80
 Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
 85 90 95
 Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
 100 105 110
 Leu Ala

<210> 40
 <211> 999
 <212> DNA
 <213> Arabidopsis thaliana

<220>
 <221> CDS
 <222> (1) ... (999)

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1 5 10 15

ggc cca gcg gca cac acg gcg gcg att tac gca gct agg gct gaa ctt 96
Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
20 25 30

aaa cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt 144
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
35 40 45

ggt caa ctc aac caa cca ccg cgt gag aat ttc ccc gga ttt cca gaa 192
Gly Gln Leu Asn Gln Pro Pro Arg Glu Asn Phe Pro Gly Phe Pro Glu
50 55 60

ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag 240
Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu
65 70 75 80

cga ttc ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc 288
Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe
85 90 95

tct tcg aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct 336
Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala
100 105 110

gac gct gtg att ctc gct atc gga gct gtg gct aag tgg ctt agc ttc 384
Asp Ala Val Ile Leu Ala Ile Gly Ala Val Ala Lys Trp Leu Ser Phe
115 120 125

gtt gga tct ggt gaa gtt ctc gga ggt ttg tgg aac cgt gga atc tcc 432
Val Gly Ser Gly Glu Val Leu Gly Gly Leu Trp Asn Arg Gly Ile Ser
130 135 140

gct tgt gct gtt tgc gac gga gct gct ccg ata ttc cgc aac aaa cct 480
Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro
145 150 155 160

ctt gcg gtg atc ggt gga ggc gat tct gca atg gaa gaa gca aac ttt 528
Leu Ala Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe
165 170 175

ctt aca aaa tat gga tct aaa gtg tat ata atc gat agg aga gat gct 576
Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile Asp Arg Arg Asp Ala
180 185 190

ttt aga gcg tct aag att atg cag cag cga gct ttg tct aat cct aag 624
Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys
195 200 205

att gat gtg att tgg aac tcg tct gtt gtg gaa gct tat gga gat gga 672
Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly
210 215 220

gaa aga gat gtg ctt gga gga ttg aaa gtg aag aat gtg gtt acc gga 720
Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly
225 230 235 240

gat gtt tct gat tta aaa gtt tct gga ttg ttc ttt gct att ggt cat 768
Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His

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245	250	255	
gag cca gct acc aag ttt ttg gat ggt ggt gtt gag tta gat tcg gat			816
Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp			
260	265	270	
ggt tat gtt gtc acg aag cct ggt act aca cag act agc gtt ccc gga			864
Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly			
275	280	285	
gtt ttc gct gcg ggt gat gtt cag gat aag aag tat agg caa gcc atc			912
Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile			
290	295	300	
act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac			960
Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr			
305	310	315	
tta caa gag att gga tct cag caa ggt aag agt gat tga			999
Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp *			
325	330		

<210> 41
 <211> 332
 <212> PRT
 <213> Arabidopsis thaliana

<400> 41

Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr	Arg	Leu	Cys	Ile	Val	Gly	Ser
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Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu
			20					25					30		
Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly
		35					40					45			
Gly	Gln	Leu	Asn	Gln	Pro	Pro	Arg	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu
	50					55					60				
Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu
	65				70					75				80	
Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	Phe
			85					90						95	
Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala
			100					105					110		
Asp	Ala	Val	Ile	Leu	Ala	Ile	Gly	Ala	Val	Ala	Lys	Trp	Leu	Ser	Phe
		115					120					125			
Val	Gly	Ser	Gly	Glu	Val	Leu	Gly	Gly	Leu	Trp	Asn	Arg	Gly	Ile	Ser
		130				135					140				
Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro
					150					155				160	
Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe
			165						170					175	
Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	Asp	Arg	Arg	Asp	Ala
			180					185					190		
Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys
		195				200						205			
Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly
		210				215					220				
Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly
					230					235				240	
Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His
				245					250					255	
Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp
			260					265					270		
Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly
		275					280					285			
Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile
		290				295					300				

Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr
 305 310 315 320
 Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp
 325 330

<210> 42
 <211> 332
 <212> DNA
 <213> E. coli

<220>
 <221> CDS
 <222> (1)...(332)

<400> 42
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 Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp
 1 5 10 15
 gta ctc aaa gcg gac ggg gct atc ctc gtt gat ttc tgg gca gag tgg 96
 Val Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp
 20 25 30
 tgc ggg ccg tgt aaa atg atc gct ccg att ctg gat gaa atc gct gac 144
 Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp
 35 40 45
 gaa tat cag ggc aaa ttg acc gtt gcc aaa ctg aac att gac cag aac 192
 Glu Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn
 50 55 60
 cca ggt act gcg cct aaa tat ggc atc cgc ggt att ccg act ctg ctg 240
 Pro Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
 65 70 75 80
 ctg ttt aaa aac ggc gaa gtg gcg gca acc aaa gta ggc gca ctg tct 288
 Leu Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 aaa ggt cag ttg aaa gag ttt ctc gac gcc aat ctg gcg taa ta 332
 Lys Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala *
 100 105

<210> 43
 <211> 109
 <212> PRT
 <213> E. coli

<400> 43
 Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp
 1 5 10 15
 Val Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp
 20 25 30
 Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp
 35 40 45
 Glu Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn
 50 55 60
 Pro Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
 65 70 75 80
 Leu Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 Lys Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala
 100 105

<210> 44
 <211> 966
 <212> DNA
 <213> E. coli

<220>
 <221> CDS
 <222> (1)...(966)

<400> 44
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 1 5 10 15
 gcg gga tac acc gct gct gtc tac gcg gcg cgc gcc aac ctg caa cct 96
 Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro
 20 25 30
 gtg ctg att acc ggc atg gaa aaa ggc ggc caa ctg acc acc acc acg 144
 Val Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr Thr
 35 40 45
 gaa gtg gaa aac tgg cct ggc gat cca aac gat ctg acc ggt ccg tta 192
 Glu Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu
 50 55 60
 tta atg gag cgc atg cac gaa cat gcc acc aag ttt gaa act gag atc 240
 Leu Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile
 65 70 75 80
 att ttt gat cat atc aac aag gtg gat ctg caa aac cgt ccg ttc cgt 288
 Ile Phe Asp His Ile Asn Lys Val Asp Leu Gln Asn Arg Pro Phe Arg
 85 90 95
 ctg aat ggc gat aac ggc gaa tac act tgc gac gcg ctg att att gcc 336
 Leu Asn Gly Asp Asn Gly Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ala
 100 105 110
 acc gga gct tct gca cgc tat ctc ggc ctg ccc tct gaa gaa gcc ttt 384
 Thr Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe
 115 120 125
 aaa ggc cgt ggg gtt tct gct tgt gca acc tgc gac ggt ttc ttc tat 432
 Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 130 135 140
 cgc aac cag aaa gtt gcg gtc atc ggc ggc ggc aat acc gcg gtt gaa 480
 Arg Asn Gln Lys Val Ala Val Ile Gly Gly Gly Asn Thr Ala Val Glu
 145 150 155 160
 gag gcg ttg tat ctg tct aac atc gct tgc gaa gtg cat ctg att cac 528
 Glu Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Ile His
 165 170 175
 cgc cgt gac ggt ttc cgc gcg gaa aaa atc ctc att aag cgc ctg atg 576
 Arg Arg Asp Gly Phe Arg Ala Glu Lys Ile Leu Ile Lys Arg Leu Met
 180 185 190
 gat aaa gtg gag aac ggc aac atc att ctg cac acc aac cgt acg ctg 624
 Asp Lys Val Glu Asn Gly Asn Ile Ile Leu His Thr Asn Arg Thr Leu
 195 200 205
 gaa gaa gtg acc ggc gat caa atg ggt gtc act ggc gtt cgt ctg cgc 672
 Glu Glu Val Thr Gly Asp Gln Met Gly Val Thr Gly Val Arg Leu Arg
 210 215 220
 gat acg caa aac agc gat aac atc gag tca ctc gac gtt gcc ggt ctg 720

Asp	Thr	Gln	Asn	Ser	Asp	Asn	Ile	Glu	Ser	Leu	Asp	Val	Ala	Gly	Leu	
225					230					235					240	
ttt	ggt	gct	atc	ggg	cac	agc	ccg	aat	act	gcg	att	ttc	gaa	ggg	cag	768
Phe	Val	Ala	Ile	Gly	His	Ser	Pro	Asn	Thr	Ala	Ile	Phe	Glu	Gly	Gln	
				245					250					255		
ctg	gaa	ctg	gaa	aac	ggc	tac	atc	aaa	gta	cag	tcg	ggg	att	cat	ggg	816
Leu	Glu	Leu	Glu	Asn	Gly	Tyr	Ile	Lys	Val	Gln	Ser	Gly	Ile	His	Gly	
			260					265					270			
aat	gcc	acc	cag	acc	agc	att	cct	ggc	gtc	ttt	gcc	gca	ggc	gac	gtg	864
Asn	Ala	Thr	Gln	Thr	Ser	Ile	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	
		275					280					285				
atg	gat	cac	att	tat	cgc	cag	gcc	att	act	tcg	gcc	ggg	aca	ggc	tgc	912
Met	Asp	His	Ile	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	
	290					295					300					
atg	gca	gca	ctt	gat	gcg	gaa	cgc	tac	ctc	gat	ggg	tta	gct	gac	gca	960
Met	Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Gly	Leu	Ala	Asp	Ala	
305					310					315					320	
aaa	taa															966
Lys	*															

<210> 45
 <211> 321
 <212> PRT
 <213> E. coli

<400> 45

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			20					25					30			
Val	Leu	Ile	Thr	Gly	Met	Glu	Lys	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	
	35					40						45				
Glu	Val	Glu	Asn	Trp	Pro	Gly	Asp	Pro	Asn	Asp	Leu	Thr	Gly	Pro	Leu	
	50					55					60					
Leu	Met	Glu	Arg	Met	His	Glu	His	Ala	Thr	Lys	Phe	Glu	Thr	Glu	Ile	
65					70					75					80	
Ile	Phe	Asp	His	Ile	Asn	Lys	Val	Asp	Leu	Gln	Asn	Arg	Pro	Phe	Arg	
			85					90						95		
Leu	Asn	Gly	Asp	Asn	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ala	
		100						105					110			
Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Glu	Ala	Phe	
	115						120					125				
Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	
	130					135					140					
Arg	Asn	Gln	Lys	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu	
145					150					155					160	
Glu	Ala	Leu	Tyr	Leu	Ser	Asn	Ile	Ala	Ser	Glu	Val	His	Leu	Ile	His	
				165					170					175		
Arg	Arg	Asp	Gly	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Ile	Lys	Arg	Leu	Met	
		180					185						190			
Asp	Lys	Val	Glu	Asn	Gly	Asn	Ile	Ile	Leu	His	Thr	Asn	Arg	Thr	Leu	
		195				200						205				
Glu	Glu	Val	Thr	Gly	Asp	Gln	Met	Gly	Val	Thr	Gly	Val	Arg	Leu	Arg	
	210					215					220					
Asp	Thr	Gln	Asn	Ser	Asp	Asn	Ile	Glu	Ser	Leu	Asp	Val	Ala	Gly	Leu	
225					230					235					240	
Phe	Val	Ala	Ile	Gly	His	Ser	Pro	Asn	Thr	Ala	Ile	Phe	Glu	Gly	Gln	
				245					250					255		
Leu	Glu	Leu	Glu	Asn	Gly	Tyr	Ile	Lys	Val	Gln	Ser	Gly	Ile	His	Gly	

260 265 270
 Asn Ala Thr Gln Thr Ser Ile Pro Gly Val Phe Ala Ala Gly Asp Val
 275 280 285
 Met Asp His Ile Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys
 290 295 300
 Met Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Gly Leu Ala Asp Ala
 305 310 315 320
 Lys

<210> 46
 <211> 318
 <212> DNA
 <213> Homo Sapien

<220>
 <221> CDS
 <222> (1) ... (318)

<400> 46
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 1 5 10 15
 gct gca ggt gat aaa ctt gta gta gtt gac ttc tca gcc acg tgg tgt 96
 Ala Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys
 20 25 30
 ggg cct tgc aaa atg atc aag cct ttc ttt cat tcc ctc tct gaa aag 144
 Gly Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
 35 40 45
 tat tcc aac gtg ata ttc ctt gaa gta gat gtg gat gac tgt cag gat 192
 Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
 50 55 60
 gtt gct tca gag tgt gaa gtc aaa tgc atg cca aca ttc cag ttt ttt 240
 Val Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
 65 70 75 80
 aag aag gga caa aag gtg ggt gaa ttt tct gga gcc aat aag gaa aag 288
 Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys
 85 90 95
 ctt gaa gcc acc att aat gaa tta gtc taa 318
 Leu Glu Ala Thr Ile Asn Glu Leu Val *
 100 105

<210> 47
 <211> 105
 <212> PRT
 <213> Homo Sapien

<400> 47
 Met Val Lys Gln Ile Glu Ser Lys Thr Ala Phe Gln Glu Ala Leu Asp
 1 5 10 15
 Ala Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys
 35 40 45
 Tyr Ser Asn Val Ile Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp
 50 55 60
 Val Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe
 65 70 75 80
 Lys Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys

Leu Glu Ala Thr Ile Asn Glu Leu Val
 100 85 90 95
 105

<210> 48
 <211> 1494
 <212> DNA
 <213> Homo sapien

<220>
 <221> CDS
 <222> (1)...(1494)

<400> 48
 atg aac ggc cct gaa gat ctt ccc aag tcc tat gac tat gac ctt atc 48
 Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile
 1 5 10 15

atc att gga ggt ggc tca gga ggt ctg gca gct gct aag gag cca gcc 96
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Pro Ala
 20 25 30

caa tat ggc aag aag gtg atg gtc ctg gac ttt ggc act ccc acc cct 144
 Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Gly Thr Pro Thr Pro
 35 40 45

ctt gga act aga tgg ggt ctt gga gga aca tgt gtg aat gtg ggt tgc 192
 Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60

ata cct aaa aaa ctg atg cat caa gca gct ttg tta gga caa gcc ctg 240
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Gly Gln Ala Leu
 65 70 75 80

caa gac tct cga aat tat gga tgg aaa gtc gag gag aca gtt aag cat 288
 Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
 85 90 95

gat tgg gac aga atg ata gaa gct gta cag aat cac att ggc tct ttg 336
 Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
 100 105 110

aat tgg ggc tac cga gta gct ctg cgg gag aaa aaa gtc gtc tat gag 384
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125

aat gct tat ggg caa ttt att ggt cct cac agg att aag gca aca aat 432
 Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
 130 135 140

aat aaa ggc aaa gaa aaa att tat tca gca gag aga ttt ctc att gcc 480
 Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160

act ggt gaa aga cca cgt tac ttg ggc atc cct ggt gac aaa gaa tac 528
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175

tgc atc agc agt gat gat ctt ttc tcc ttg cct tac tgc ccg ggt aag 576
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190

aca ctg gtt gtt gga gca tcc tat gtc gct ttg gag tgc gct gga ttt 624
 Thr Leu Val Val Gly Ala Ser Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205

ctt gct ggt att ggt tta gac gtc act gtt atg gtt agg tcc att ctt	672
Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu	
210 215 220	
ctt aga gga ttt gac cag gac atg gcc aac aaa att ggt gaa cac atg	720
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met	
225 230 235 240	
gaa gaa cat ggc atc aag ttt ata aga cag ttc gta cca att aaa gtt	768
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val	
245 250 255	
gaa caa att gaa gca ggg aca cca ggc cga ctc aga gta gta gct cag	816
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln	
260 265 270	
tcc acc aat agt gag gaa atc att gaa gga gaa tat aat acg gtg atg	864
Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met	
275 280 285	
ctg gca ata gga aga gat gct tgc aca aga aaa att ggc tta gaa acc	912
Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr	
290 295 300	
gta ggg gtg aag ata aat gaa aag act gga aaa ata cct gtc aca gat	960
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp	
305 310 315 320	
gaa gaa cag acc aat gtg cct tac atc tat gcc att ggc gat ata ttg	1008
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu	
325 330 335	
gag gat aag gtg gag ctc acc cca gtt gca atc cag gca gga aga ttg	1056
Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu	
340 345 350	
ctg gct cag agg ctc tat gca ggt tcc act gtc aag tgt gac tat gaa	1104
Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu	
355 360 365	
aat gtt cca acc act gta ttt act cct ttg gaa tat ggt gct tgt ggc	1152
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Thr Gly Ala Cys Gly	
370 375 380	
ctt tct gag gag aaa gct gtg gag aag ttt ggg gaa gaa aat att gag	1200
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu	
385 390 395 400	
gtt tac cat agt tac ttt tgg cca ttg gaa tgg acg att ccg tca aga	1248
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg	
405 410 415	
gat aac aac aaa tgt tat gca aaa ata atc tgt aat act aaa gac aat	1296
Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn	
420 425 430	
gaa cgt gtt gtg ggc ttt cac gta ctg ggt cca aat gct gga gaa gtt	1344
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val	
435 440 445	
aca caa ggc ttt gca gct gcg ctc aaa tgt gga ctg acc aaa aag cag	1392
Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln	
450 455 460	
ctg gac agc aca att gga atc cac cct gtc tgt gca gag gta ttc aca	1440
Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Val Phe Thr	
465 470 475 480	

aca ttg tct gtg acc aag cgc tct ggg gca agc atc ctc cag gct ggc 1488
 Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile Leu Gln Ala Gly
 485 490 495

tgc tga 1494
 Cys *

<210> 49
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 <212> PRT
 <213> Homo sapien

<400> 49
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 Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Gly Thr Pro Thr Pro
 35 40 45
 Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
 85 90 95
 Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
 130 135 140
 Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 210 215 220
 Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
 225 230 235 240
 Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val
 245 250 255
 Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln
 260 265 270
 Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met
 275 280 285
 Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
 305 310 315 320
 Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
 325 330 335
 Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
 340 345 350
 Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu
 355 360 365
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly
 370 375 380
 Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
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 Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg

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Ser	Val	Thr	Leu	Val	His	Arg	Arg	Asp	Glu	Phe	Arg	Ala	Ser	Lys	Ile					
			180					185					190							
atg	ctc	ggg	cgc	gcc	cgt	aac	aat	gac	aag	atc	aaa	ttc	atc	acc	aac	624				
Met	Leu	Gly	Arg	Ala	Arg	Asn	Asn	Asp	Lys	Ile	Lys	Phe	Ile	Thr	Asn					
		195					200					205								
cac	acc	gtg	gtc	gcg	gtg	aac	ggg	tat	aca	aca	gtg	acc	gga	ttg	cgg	672				
His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr	Thr	Thr	Val	Thr	Gly	Leu	Arg					
	210					215					220									
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Leu	Arg	Asn	Thr	Thr	Thr	Gly	Glu	Glu	Thr	Thr	Leu	Val	Val	Thr	Gly					
225					230					235					240					
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Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Ser	Leu	Val	Ser	Asp					
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gtc	gtc	gac	ata	gac	ccg	gat	ggc	tac	gtc	ctg	gtg	aaa	gga	cgt	acg	816				
Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Lys	Gly	Arg	Thr					
			260					265					270							
acg	agt	aca	tcg	atg	gac	ggc	gtt	ttt	gcg	gcc	ggc	gac	ctg	gta	gat	864				
Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp					
		275					280					285								
cgc	acc	tac	cgg	cag	gcg	atc	act	gcc	gca	ggg	agt	ggc	tgt	gcc	gcc	912				
Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala					
	290					295					300									
gcc	atc	gac	gcc	gaa	cgt	tgg	ttg	gcg	gag	cat	gcc	ggg	tca	aaa	gct	960				
Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala					
305					310					315					320					
aac	gaa	aca	aca	gag	gaa	act	gga	gac	gtt	gac	agt	acc	gac	aca	acc	1008				
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr					
				325				330						335						
gat	tgg	agc	act	gcg	atg	act	gac	gcc	aag	aac	gcc	ggg	gtc	aca	ata	1056				
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile					
			340				345						350							
gaa	gtg	acc	gat	gct	tcc	ttt	ttc	gca	gac	gtc	tta	tcc	agt	aat	aag	1104				
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys					
		355				360					365									
cct	gtg	tta	gtt	gat	ttt	tgg	gca	aca	tgg	tgt	gga	ccc	tgc	aag	atg	1152				
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met					
	370					375					380									
gta	gcg	ccg	gta	ctc	gaa	gag	atc	gcg	tcc	gaa	caa	cga	aac	cag	ctc	1200				
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu					
385					390					395					400					
act	gtc	gcc	aag	tta	gat	gta	gac	acc	aac	ccg	gaa	atg	gca	cgc	gag	1248				
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu					
				405				410						415						
ttc	cag	gtc	gtg	tcg	ata	ccc	aca	atg	att	ctg	ttc	cag	ggg	ggc	caa	1296				
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln					
			420				425						430							
cca	gta	aaa	cgc	atc	gtt	ggc	gct	aag	ggc	aaa	gca	gcg	tta	cta	cgt	1344				

Pro Val Lys Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg
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gac ctt tcc gac gtg gta cct aac ctc aat tag
 Asp Leu Ser Asp Val Val Pro Asn Leu Asn *
 450 455

1377

<210> 51
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 51
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 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala
 100 105 110
 Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile
 115 120 125
 Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr
 130 135 140
 Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg
 165 170 175
 Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile
 180 185 190
 Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn
 195 200 205
 His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg
 210 215 220
 Leu Arg Asn Thr Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly
 225 230 235 240
 Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp
 245 250 255
 Val Val Asp Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr
 260 265 270
 Thr Ser Thr Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp
 275 280 285
 Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala
 290 295 300
 Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala
 305 310 315 320
 Asn Glu Thr Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr
 325 330 335
 Asp Trp Ser Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile
 340 345 350
 Glu Val Thr Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys
 355 360 365
 Pro Val Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met
 370 375 380
 Val Ala Pro Val Leu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu
 385 390 395 400
 Thr Val Ala Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu
 405 410 415
 Phe Gln Val Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln

Pro	Val	Lys	420	Arg	Ile	Val	Gly	Ala	425	Lys	Gly	Lys	Ala	Ala	430	Leu	Leu	Arg
		435						440						445				
Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn									
	450					455												

<210> 52
 <211> 178
 <212> PRT
 <213> Arabidopsis thaliana

<400> 52

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Thr	Thr	Gly	Gly	Phe	Gly	Pro	Ser	Arg	Lys	Gln	Cys	Arg	Ile	Pro	Tyr
		20					25						30		
Ser	Gly	Val	Pro	Thr	Thr	Lys	Ile	Gly	Phe	Cys	Ser	Leu	Asp	Ser	Arg
	35					40						45			
Lys	Arg	Gly	Asp	Ser	Ser	Val	Val	Arg	Cys	Ser	Leu	Glu	Thr	Val	Asn
	50					55					60				
Val	Ser	Val	Gly	Gln	Val	Thr	Glu	Val	Asp	Lys	Asp	Thr	Phe	Trp	Pro
65				70					75					80	
Ile	Val	Lys	Ala	Ala	Gly	Glu	Lys	Leu	Val	Val	Leu	Asp	Met	Tyr	Thr
			85					90					95		
Gln	Trp	Cys	Gly	Pro	Cys	Lys	Val	Ile	Ala	Pro	Lys	Tyr	Lys	Ala	Leu
		100					105						110		
Ser	Glu	Lys	Tyr	Asp	Asp	Val	Val	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Pro
	115					120						125			
Asp	Asn	Arg	Pro	Leu	Pro	Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr
	130					135					140				
Phe	Lys	Ile	Leu	Lys	Asp	Asn	Lys	Val	Val	Lys	Glu	Val	Thr	Gly	Ala
145					150					155				160	
Lys	Tyr	Asp	Asp	Leu	Val	Ala	Ala	Ile	Glu	Thr	Ala	Arg	Ser	Ala	Ala
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Ser	Gly														

<210> 53
 <211> 185
 <212> PRT
 <213> Arabidopsis thaliana

<400> 53

Met	Pro	Leu	Ser	Leu	Arg	Leu	Ala	Pro	Ser	Pro	Thr	Ser	Phe	Arg	Tyr
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Ser	Pro	Ile	Thr	Ser	Thr	Gly	Ala	Gly	Gly	Phe	Ser	Pro	Val	Lys	Gln
		20						25					30		
His	Cys	Arg	Ile	Pro	Asn	Ser	Gly	Val	Ala	Thr	Lys	Ile	Gly	Phe	Cys
	35					40						45			
Ser	Gly	Gly	Gly	Gly	Val	Leu	Asp	Ser	Gly	Arg	Arg	Ile	Gly	Ser	Cys
	50					55					60				
Val	Val	Arg	Cys	Ser	Leu	Glu	Thr	Val	Asn	Val	Thr	Val	Gly	Gln	Val
65					70				75					80	
Thr	Glu	Val	Asp	Lys	Asp	Thr	Phe	Trp	Pro	Ile	Val	Lys	Ala	Ala	Gly
			85					90					95		
Asp	Lys	Ile	Val	Val	Leu	Asp	Met	Tyr	Thr	Gln	Trp	Cys	Gly	Pro	Cys
		100					105						110		
Lys	Val	Ile	Ala	Pro	Lys	Tyr	Lys	Glu	Leu	Ser	Glu	Lys	Tyr	Gln	Asp
	115					120						125			
Met	Val	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Gln	Asp	Asn	Lys	Pro	Leu	Ala
	130					135					140				
Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr	Phe	Lys	Ile	Leu	Lys	Asp
145					150					155				160	
Asn	Lys	Val	Val	Lys	Glu	Val	Thr	Gly	Ala	Lys	Tyr	Glu	Asp	Leu	Leu
				165					170					175	

Ala Ala Ile Glu Ala Ala Arg Ser Gly
180 185

<210> 54
<211> 182
<212> PRT
<213> Brassica napus

<400> 54

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Thr	Thr	Gly	Gly	Phe	Ser	Pro	Ala	Lys	Lys	Gln	Cys	Arg	Ile	Pro	Ser
		20						25					30		
Tyr	Ser	Gly	Val	Ala	Thr	Thr	Thr	Arg	Arg	Ile	Gly	Leu	Cys	Ser	Leu
		35					40					45			
Asp	Tyr	Val	Lys	Arg	Gly	Asp	Ser	Ser	Val	Val	Arg	Cys	Ser	Leu	Gln
	50					55					60				
Thr	Val	Asn	Val	Ser	Val	Gly	Gln	Val	Thr	Glu	Val	Asp	Lys	Asp	Thr
65					70					75				80	
Phe	Trp	Pro	Ile	Val	Lys	Ala	Ala	Gly	Glu	Lys	Ile	Val	Val	Leu	Asp
				85					90					95	
Met	Tyr	Thr	Gln	Trp	Cys	Gly	Pro	Cys	Lys	Val	Ile	Ala	Pro	Lys	Tyr
			100					105					110		
Lys	Ala	Leu	Ser	Glu	Lys	Tyr	Glu	Asp	Val	Val	Phe	Leu	Lys	Leu	Asp
		115					120					125			
Cys	Asn	Pro	Glu	Asn	Arg	Pro	Leu	Ala	Lys	Glu	Leu	Gly	Ile	Arg	Val
	130					135					140				
Val	Pro	Thr	Phe	Lys	Ile	Leu	Lys	Asp	Asn	Gln	Val	Val	Lys	Glu	Val
145					150					155					160
Thr	Gly	Ala	Lys	Tyr	Asp	Asp	Leu	Val	Ala	Ala	Ile	Glu	Thr	Ala	Arg
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Ser	Ala	Ser	Ser	Ser	Gly										
				180											

<210> 55
<211> 191
<212> PRT
<213> Mesembryanthemum crystallinum

<400> 55

Met	Ala	Met	Gln	Leu	Ser	Leu	Ser	His	Gln	Ser	Trp	Ala	Lys	Ser	Leu
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Ala	Ser	Pro	Ile	Thr	Ser	Phe	Asp	Pro	Ala	Arg	Ser	Pro	Pro	Lys	Arg
			20					25					30		
Val	Glu	Leu	Gly	Pro	Asn	Cys	Leu	Asn	Gly	Gly	Ala	Thr	Ala	Gly	Lys
		35					40					45			
Leu	Met	Arg	Glu	Lys	Val	Gly	Glu	Arg	Met	Arg	Met	Ser	Gly	Arg	Ser
	50					55					60				
Cys	Cys	Val	Lys	Ala	Ser	Leu	Glu	Thr	Ala	Val	Gly	Ala	Glu	Ser	Glu
65					70					75				80	
Thr	Leu	Val	Gly	Lys	Val	Thr	Glu	Val	Asp	Lys	Asp	Thr	Phe	Trp	Pro
				85					90					95	
Ile	Ala	Asn	Gly	Ala	Gly	Asp	Lys	Pro	Val	Val	Leu	Asp	Met	Tyr	Thr
			100					105					110		
Gln	Trp	Cys	Gly	Pro	Cys	Lys	Val	Met	Ala	Pro	Lys	Tyr	Gln	Glu	Leu
		115					120					125			
Ala	Glu	Lys	Leu	Leu	Asp	Val	Val	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Gln
						135					140				
Glu	Asn	Lys	Pro	Leu	Ala	Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr
145					150					155					160
Phe	Lys	Ile	Leu	Lys	Gly	Gly	Lys	Ile	Val	Asp	Glu	Val	Thr	Gly	Ala
				165					170					175	
Lys	Phe	Asp	Lys	Leu	Val	Ala	Ala	Ile	Glu	Ala	Ala	Arg	Ser	Ser	
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<210> 56
 <211> 182
 <212> PRT
 <213> Pisum sativum

<400> 56
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 35 40 45
 Gln Arg Leu Ser Leu Arg Arg Ser Ile Ser Val Ser Val Arg Ser Ser
 50 55 60
 Leu Glu Thr Ala Gly Pro Thr Val Thr Val Gly Lys Val Thr Glu Val
 65 70 75 80
 Asn Lys Asp Thr Phe Trp Pro Ile Val Asn Ala Ala Gly Asp Lys Thr
 85 90 95
 Val Val Leu Asp Met Phe Thr Lys Trp Cys Gly Pro Cys Lys Val Ile
 100 105 110
 Ala Pro Leu Tyr Glu Glu Leu Ser Gln Lys Tyr Leu Asp Val Val Phe
 115 120 125
 Leu Lys Leu Asp Cys Asn Gln Asp Asn Lys Ser Leu Ala Lys Glu Leu
 130 135 140
 Gly Ile Lys Val Val Pro Thr Phe Lys Ile Leu Lys Asp Asn Lys Ile
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 Val Lys Glu Val Thr Gly Ala Lys Phe Asp Asp Leu Val Ala Ala Ile
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 Asp Thr Val Arg Ser Ser
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<210> 57
 <211> 190
 <212> PRT
 <213> Spinacia oleracea

<400> 57
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 His Pro Ile Thr Ser Ser Asp Pro Thr Arg Ser Ser Val Pro Gly Thr
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 Gly Leu Ser Arg Arg Val Asp Phe Leu Gly Ser Cys Lys Ile Asn Gly
 35 40 45
 Val Phe Val Val Lys Arg Lys Asp Arg Arg Arg Met Arg Gly Gly Glu
 50 55 60
 Val Arg Ala Ser Met Glu Gln Ala Leu Gly Thr Gln Glu Met Glu Ala
 65 70 75 80
 Ile Val Gly Lys Val Thr Glu Val Asn Lys Asp Thr Phe Trp Pro Ile
 85 90 95
 Val Lys Ala Ala Gly Asp Lys Pro Val Val Leu Asp Met Phe Thr Gln
 100 105 110
 Trp Cys Gly Pro Cys Lys Ala Met Ala Pro Lys Tyr Glu Lys Leu Ala
 115 120 125
 Glu Glu Tyr Leu Asp Val Ile Phe Leu Lys Leu Asp Cys Asn Gln Glu
 130 135 140
 Asn Lys Thr Leu Ala Lys Glu Leu Gly Ile Arg Val Val Pro Thr Phe
 145 150 155 160
 Lys Ile Leu Lys Glu Asn Ser Val Val Gly Glu Val Thr Gly Ala Lys
 165 170 175
 Tyr Asp Lys Leu Leu Glu Ala Ile Gln Ala Ala Arg Ser Ser
 180 185 190

<210> 58
 <211> 106
 <212> PRT

<213> Anabaena

<400> 58

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Ser Ala Ala Ala Gln Val Thr Asp Ser Thr Phe Lys Gln Glu Val Leu
1          5          10          15
Asp Ser Asp Val Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
20          25          30
Pro Cys Arg Met Val Ala Pro Val Val Asp Glu Ile Ala Gln Gln Tyr
35          40          45
Glu Gly Lys Ile Lys Val Val Lys Val Asn Thr Asp Glu Asn Pro Gln
50          55          60
Val Ala Ser Gln Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
65          70          75          80
Lys Gly Gly Gln Lys Val Asp Met Val Val Gly Ala Val Pro Lys Thr
85          90          95
Thr Leu Ser Gln Thr Leu Glu Lys His Leu
100          105
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<210> 59

<211> 179

<212> PRT

<213> Arabidopsis thaliana

<400> 59

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Met Ala Ala Tyr Thr Cys Thr Ser Arg Pro Pro Ile Ser Ile Arg Ser
1          5          10          15
Glu Met Arg Ile Ala Ser Ser Pro Thr Gly Ser Phe Ser Thr Arg Gln
20          25          30
Met Phe Ser Val Leu Pro Glu Ser Ser Gly Leu Arg Thr Arg Val Ser
35          40          45
Leu Ser Ser Leu Ser Lys Asn Ser Arg Val Ser Arg Leu Arg Arg Gly
50          55          60
Val Ile Cys Glu Ala Gln Asp Thr Ala Thr Gly Ile Pro Val Val Asn
65          70          75          80
Asp Ser Thr Trp Asp Ser Leu Val Leu Lys Ala Asp Glu Pro Val Phe
85          90          95
Val Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys Lys Met Ile Asp Pro
100          105          110
Ile Val Asn Glu Leu Ala Gln Lys Tyr Ala Gly Gln Phe Lys Phe Tyr
115          120          125
Lys Leu Asn Thr Asp Glu Ser Pro Ala Thr Pro Gly Gln Tyr Gly Val
130          135          140
Arg Ser Ile Pro Thr Ile Met Ile Phe Val Asn Gly Glu Lys Lys Asp
145          150          155          160
Thr Ile Ile Gly Ala Val Ser Lys Asp Thr Leu Ala Thr Ser Ile Asn
165          170          175
Lys Phe Leu
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<210> 60

<211> 186

<212> PRT

<213> Arabidopsis thaliana

<400> 60

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Met Ala Ala Phe Thr Cys Thr Ser Arg Pro Pro Ile Ser Leu Arg Ser
1          5          10          15
Glu Thr Arg Ile Val Ser Ser Ser Pro Ser Ala Ser Ser Leu Ser Ser
20          25          30
Arg Arg Met Phe Ala Val Leu Pro Glu Ser Ser Gly Leu Arg Ile Arg
35          40          45
Leu Ser Leu Ser Pro Ala Ser Leu Thr Ser Ile His Gln Pro Arg Val
50          55          60
Ser Arg Leu Arg Arg Ala Val Val Cys Glu Ala Gln Glu Thr Thr Thr
65          70          75          80
```

Asp Ile Gln Val Val Asn Asp Ser Thr Trp Asp Ser Leu Val Leu Lys
 85 90 95
 Ala Thr Gly Pro Val Val Val Asp Phe Trp Ala Pro Trp Cys Gly Pro
 100 105 110
 Cys Lys Met Ile Asp Pro Leu Val Asn Asp Leu Ala Gln His Tyr Thr
 115 120 125
 Gly Lys Ile Lys Phe Tyr Lys Leu Asn Thr Asp Glu Ser Pro Asn Thr
 130 135 140
 Pro Gly Gln Tyr Gly Val Arg Ser Ile Pro Thr Ile Met Ile Phe Val
 145 150 155 160
 Gly Gly Glu Lys Lys Asp Thr Ile Ile Gly Ala Val Pro Lys Thr Thr
 165 170 175
 Leu Thr Ser Ser Leu Asp Lys Phe Leu Pro
 180 185

<210> 61
 <211> 173
 <212> PRT
 <213> Arabidopsis thaliana

<400> 61
 Met Ala Ile Ser Ser Ser Ser Ser Ile Cys Phe Asn Pro Thr Arg
 1 5 10 15
 Phe His Thr Ala Arg His Ile Ser Ser Pro Ser Arg Leu Phe Pro Val
 20 25 30
 Thr Ser Phe Ser Pro Arg Ser Leu Arg Phe Ser Asp Arg Ser Leu
 35 40 45
 Leu Ser Ser Ser Ala Ser Arg Leu Arg Leu Ser Pro Leu Cys Val Arg
 50 55 60
 Asp Ser Arg Ala Ala Glu Val Thr Gln Arg Ser Trp Glu Asp Ser Val
 65 70 75 80
 Leu Lys Ser Glu Thr Pro Val Leu Val Glu Phe Tyr Thr Ser Trp Cys
 85 90 95
 Gly Pro Cys Arg Met Val His Arg Ile Ile Asp Glu Ile Ala Gly Asp
 100 105 110
 Tyr Ala Gly Lys Leu Asn Cys Tyr Leu Leu Asn Ala Asp Asn Asp Leu
 115 120 125
 Pro Val Ala Glu Glu Tyr Glu Ile Lys Ala Val Pro Val Val Leu Leu
 130 135 140
 Phe Lys Asn Gly Glu Lys Arg Glu Ser Ile Met Gly Thr Met Pro Lys
 145 150 155 160
 Glu Phe Tyr Ile Ser Ala Ile Glu Arg Val Leu Asn Ser
 165 170

<210> 62
 <211> 193
 <212> PRT
 <213> Arabidopsis thaliana

<400> 62
 Met Ala Ser Leu Leu Asp Ser Val Thr Val Thr Arg Val Phe Ser Leu
 1 5 10 15
 Pro Ile Ala Ala Ser Val Ser Ser Ser Ser Ala Ala Pro Ser Val Ser
 20 25 30
 Arg Arg Arg Ile Ser Pro Ala Arg Phe Leu Glu Phe Arg Gly Leu Lys
 35 40 45
 Ser Ser Arg Ser Leu Val Thr Gln Ser Ala Ser Leu Gly Ala Asn Arg
 50 55 60
 Arg Thr Arg Ile Ala Arg Gly Gly Arg Ile Ala Cys Glu Ala Gln Asp
 65 70 75 80
 Thr Thr Ala Ala Ala Val Glu Val Pro Asn Leu Ser Asp Ser Glu Trp
 85 90 95
 Gln Thr Lys Val Leu Glu Ser Asp Val Pro Val Leu Val Glu Phe Trp
 100 105 110
 Ala Pro Trp Cys Gly Pro Cys Arg Met Ile His Pro Ile Val Asp Gln

	115					120				125									
Leu	Ala	Lys	Asp	Phe	Ala	Gly	Lys	Phe	Lys	Phe	Tyr	Lys	Ile	Asn	Thr				
	130					135					140								
Asp	Glu	Ser	Pro	Asn	Thr	Pro	Asn	Arg	Tyr	Gly	Ile	Arg	Ser	Val	Pro				
145					150					155					160				
Thr	Val	Ile	Ile	Phe	Lys	Gly	Gly	Glu	Lys	Lys	Asp	Ser	Ile	Ile	Gly				
				165					170					175					
Ala	Val	Pro	Arg	Glu	Thr	Leu	Glu	Lys	Thr	Ile	Glu	Arg	Phe	Leu	Val				
			180					185					190						
Glu																			

<210> 63
 <211> 177
 <212> PRT
 <213> Brassica napus

Met	Ala	Ala	Phe	Thr	Cys	Thr	Ser	Ser	Pro	Pro	Ile	Ser	Leu	Arg	Ser				
1				5					10					15					
Glu	Met	Met	Ile	Ala	Ser	Ser	Lys	Thr	Val	Ser	Leu	Ser	Thr	Arg	Gln				
			20					25						30					
Met	Phe	Ser	Val	Gly	Gly	Leu	Arg	Thr	Arg	Val	Ser	Leu	Ser	Ser	Val				
		35					40					45							
Ser	Lys	Asn	Ser	Arg	Ala	Ser	Arg	Leu	Arg	Arg	Gly	Gly	Ile	Ile	Cys				
	50					55					60								
Glu	Ala	Gln	Asp	Thr	Ala	Thr	Gly	Ile	Pro	Met	Val	Asn	Asp	Ser	Thr				
65				70					75						80				
Trp	Glu	Ser	Leu	Val	Leu	Lys	Ala	Asp	Glu	Pro	Val	Val	Val	Asp	Phe				
				85					90					95					
Trp	Ala	Pro	Trp	Cys	Gly	Pro	Cys	Lys	Met	Ile	Asp	Pro	Ile	Val	Asn				
			100					105						110					
Glu	Leu	Ala	Gln	Gln	Tyr	Thr	Gly	Lys	Ile	Lys	Phe	Phe	Lys	Leu	Asn				
		115					120					125							
Thr	Asp	Asp	Ser	Pro	Ala	Thr	Pro	Gly	Lys	Tyr	Gly	Val	Arg	Ser	Ile				
	130					135					140								
Pro	Thr	Ile	Met	Ile	Phe	Val	Lys	Gly	Glu	Lys	Lys	Asp	Thr	Ile	Ile				
145				150						155					160				
Gly	Ala	Val	Pro	Lys	Thr	Thr	Leu	Ala	Thr	Ser	Ile	Asp	Lys	Phe	Leu				
				165					170					175					
Gln																			

<210> 64
 <211> 140
 <212> PRT
 <213> Chlamydomonas reinhardtii

Met	Ala	Leu	Val	Ala	Arg	Arg	Ala	Ala	Val	Pro	Ser	Ala	Arg	Ser	Ser				
1				5					10					15					
Ala	Arg	Pro	Ala	Phe	Ala	Arg	Ala	Ala	Pro	Arg	Arg	Ser	Val	Val	Val				
			20					25					30						
Arg	Ala	Glu	Ala	Gly	Ala	Val	Asn	Asp	Asp	Thr	Phe	Lys	Asn	Val	Val				
		35					40					45							
Leu	Glu	Ser	Ser	Val	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys				
	50					55					60								
Gly	Pro	Cys	Arg	Ile	Ile	Ala	Pro	Val	Val	Asp	Glu	Ile	Ala	Gly	Glu				
65				70					75						80				
Tyr	Lys	Asp	Lys	Leu	Lys	Cys	Val	Lys	Leu	Asn	Thr	Asp	Glu	Ser	Pro				
			85					90						95					
Asn	Val	Ala	Ser	Glu	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Ile	Met	Val				
			100					105					110						
Phe	Lys	Gly	Gly	Lys	Lys	Cys	Glu	Thr	Ile	Ile	Gly	Ala	Val	Pro	Lys				
		115					120					125							

Ala Thr Ile Val Gln Thr Val Glu Lys Tyr Leu Asn
 130 135 140

<210> 65
 <211> 167
 <212> PRT
 <213> Zea mays

<400> 65
 Met Ala Met Glu Thr Cys Phe Arg Ala Trp Ala Leu His Ala Pro Ala
 1 5 10 15
 Gly Ser Lys Asp Arg Leu Leu Val Gly Asn Leu Val Leu Pro Ser Lys
 20 25 30
 Arg Ala Leu Ala Pro Leu Ser Val Gly Arg Val Ala Thr Arg Arg Pro
 35 40 45
 Arg His Val Cys Gln Ser Lys Asn Ala Val Asp Glu Val Val Val Ala
 50 55 60
 Asp Glu Lys Asn Trp Asp Gly Leu Val Met Ala Cys Glu Thr Pro Val
 65 70 75 80
 Leu Val Glu Phe Trp Ala Pro Trp Cys Gly Pro Cys Arg Met Ile Ala
 85 90 95
 Pro Val Ile Asp Glu Leu Ala Lys Asp Tyr Ala Gly Lys Ile Thr Cys
 100 105 110
 Cys Lys Val Asn Thr Asp Asp Ser Pro Asn Val Ala Ser Thr Tyr Gly
 115 120 125
 Ile Arg Ser Ile Pro Thr Val Leu Ile Phe Lys Gly Glu Lys Lys
 130 135 140
 Glu Ser Val Ile Gly Ala Val Pro Lys Ser Thr Leu Thr Thr Leu Ile
 145 150 155 160
 Asp Lys Tyr Ile Gly Ser Ser
 165

<210> 66
 <211> 172
 <212> PRT
 <213> Oryza sativa

<400> 66
 Met Ala Leu Glu Thr Cys Phe Arg Ala Trp Ala Thr Leu His Ala Pro
 1 5 10 15
 Gln Pro Pro Ser Ser Gly Gly Ser Arg Asp Arg Leu Leu Leu Ser Gly
 20 25 30
 Ala Gly Ser Ser Gln Ser Lys Pro Arg Leu Ser Val Ala Ser Pro Ser
 35 40 45
 Pro Leu Arg Pro Ala Ser Arg Phe Ala Cys Gln Cys Ser Asn Val Val
 50 55 60
 Asp Glu Val Val Val Ala Asp Glu Lys Asn Trp Asp Ser Met Val Leu
 65 70 75 80
 Gly Ser Glu Ala Pro Val Leu Val Glu Phe Trp Ala Pro Trp Cys Gly
 85 90 95
 Pro Cys Arg Met Ile Ala Pro Val Ile Asp Glu Leu Ala Lys Glu Tyr
 100 105 110
 Val Gly Lys Ile Lys Cys Cys Lys Val Asn Thr Asp Asp Ser Pro Asn
 115 120 125
 Ile Ala Thr Asn Tyr Gly Ile Arg Ser Ile Pro Thr Val Leu Met Phe
 130 135 140
 Lys Asn Gly Glu Lys Lys Glu Ser Val Ile Gly Ala Val Pro Lys Thr
 145 150 155 160
 Thr Leu Ala Thr Ile Asp Lys Tyr Val Ser Ser
 165 170

<210> 67
 <211> 172
 <212> PRT

<213> Pisum sativum

<400> 67

Met Ala Leu Glu Ser Leu Phe Lys Ser Ile His Thr Lys Thr Ser Leu
1 5 10 15
Ser Ser Ser Ile Val Phe Ile Phe Lys Gly Lys Ala Cys Leu Leu Thr
20 25 30
Ser Lys Ser Arg Ile Gln Glu Ser Phe Ala Glu Leu Asn Ser Phe Thr
35 40 45
Ser Leu Val Leu Leu Ile Glu Asn His Val Leu Leu His Ala Arg Glu
50 55 60
Ala Val Asn Glu Val Gln Val Val Asn Asp Ser Ser Trp Asp Glu Leu
65 70 75 80
Val Ile Gly Ser Glu Thr Pro Val Leu Val Asp Phe Trp Ala Pro Trp
85 90 95
Cys Gly Pro Cys Arg Met Ile Ala Pro Ile Ile Asp Glu Leu Ala Lys
100 105 110
Glu Tyr Ala Gly Lys Ile Lys Cys Tyr Lys Leu Asn Thr Asp Glu Ser
115 120 125
Pro Asn Thr Ala Thr Lys Tyr Gly Ile Arg Ser Ile Pro Thr Val Leu
130 135 140
Phe Phe Lys Asn Gly Glu Arg Lys Asp Ser Val Ile Gly Ala Val Pro
145 150 155 160
Lys Ala Thr Leu Ser Glu Lys Val Glu Lys Tyr Ile
165 170

<210> 68

<211> 181

<212> PRT

<213> Spinacia oleracea

<400> 68

Met Ala Ile Glu Asn Cys Leu Gln Leu Ser Thr Ser Ala Ser Val Gly
1 5 10 15
Thr Val Ala Val Lys Ser His Val His His Leu Gln Pro Ser Ser Lys
20 25 30
Val Asn Val Pro Thr Phe Arg Gly Leu Lys Arg Ser Phe Pro Ala Leu
35 40 45
Ser Ser Ser Val Ser Ser Ser Ser Pro Arg Gln Phe Arg Tyr Ser Ser
50 55 60
Val Val Cys Lys Ala Ser Glu Ala Val Lys Glu Val Gln Asp Val Asn
65 70 75 80
Asp Ser Ser Trp Lys Glu Phe Val Leu Glu Ser Glu Val Pro Val Met
85 90 95
Val Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys Lys Leu Ile Ala Pro
100 105 110
Val Ile Asp Glu Leu Ala Lys Glu Tyr Ser Gly Lys Ile Ala Val Tyr
115 120 125
Lys Leu Asn Thr Asp Glu Ala Pro Gly Ile Ala Thr Gln Tyr Asn Ile
130 135 140
Arg Ser Ile Pro Thr Val Leu Phe Phe Lys Asn Gly Glu Arg Lys Glu
145 150 155 160
Ser Ile Ile Gly Ala Val Pro Lys Ser Thr Leu Thr Asp Ser Ile Glu
165 170 175
Lys Tyr Leu Ser Pro
180

<210> 69

<211> 175

<212> PRT

<213> Triticum aestivum

<400> 69

Met Ala Leu Glu Thr Cys Leu Arg Gly Trp Ala Leu Tyr Ala Pro Gln
1 5 10 15

Ala Gly Ile Arg Glu Arg Leu Ser Ser Gly Ser Tyr Ala Pro Ser Arg
 20 25 30
 Pro Arg Thr Ala Ala Pro Ala Val Val Ser Pro Ser Pro Tyr Lys Ser
 35 40 45
 Ala Leu Val Ala Ala Arg Arg Pro Ser Arg Phe Val Cys Lys Cys Lys
 50 55 60
 Asn Val Val Asp Glu Val Ile Val Ala Asp Glu Lys Asn Trp Asp Asn
 65 70 75 80
 Met Val Ile Ala Cys Glu Ser Pro Val Leu Val Glu Phe Trp Ala Pro
 85 90 95
 Trp Cys Gly Pro Cys Arg Met Ile Ala Pro Val Ile Asp Glu Leu Ala
 100 105 110
 Lys Asp Tyr Val Gly Lys Ile Lys Cys Cys Lys Val Asn Thr Asp Asp
 115 120 125
 Cys Pro Asn Ile Ala Ser Thr Tyr Gly Ile Arg Ser Ile Pro Thr Val
 130 135 140
 Leu Met Phe Lys Asp Gly Glu Lys Lys Glu Ser Val Ile Gly Ala Val
 145 150 155 160
 Pro Lys Thr Thr Leu Cys Thr Ile Ile Asp Lys Tyr Ile Gly Ser
 165 170 175

<210> 70
 <211> 106
 <212> PRT
 <213> Anacystis nidulans

<400> 70
 Ser Val Ala Ala Ala Val Thr Asp Ala Thr Phe Lys Gln Glu Val Leu
 1 5 10 15
 Glu Ser Ser Ile Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Val Ala Pro Val Asp Glu Ile Ala Gln Gln Tyr
 35 40 45
 Ser Asp Gln Val Lys Val Val Lys Val Asn Thr Asp Glu Asn Pro Ser
 50 55 60
 Val Ala Ser Gln Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
 65 70 75 80
 Lys Asp Gly Gln Arg Val Asp Thr Val Val Gly Ala Val Pro Lys Thr
 85 90 95
 Thr Leu Ala Asn Thr Leu Asp Lys His Leu
 100 105

<210> 71
 <211> 107
 <212> PRT
 <213> Cyanidium caldarium

<400> 71
 Met Pro Ser Pro Ile Gln Val Thr Asp Phe Ser Phe Glu Lys Glu Val
 1 5 10 15
 Val Asn Ser Glu Lys Leu Val Leu Val Asp Phe Trp Ala Pro Trp Cys
 20 25 30
 Gly Pro Cys Arg Met Ile Ser Pro Val Ile Asp Glu Leu Ala Gln Glu
 35 40 45
 Tyr Val Glu Gln Val Lys Ile Val Lys Ile Asn Thr Asp Glu Asn Pro
 50 55 60
 Ser Ile Ser Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Leu
 65 70 75 80
 Phe Lys Asp Gly Lys Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys
 85 90 95
 Ser Thr Leu Thr Asn Ala Leu Lys Lys Tyr Leu
 100 105

<210> 72

<211> 102
 <212> PRT
 <213> Cyanidioschyzon merolae

<400> 72
 Met Leu His Ile Asp Glu Leu Thr Phe Glu Asn Glu Val Leu Gln Ser
 1 5 10 15
 Glu Lys Leu Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys
 20 25 30
 Arg Met Ile Gly Pro Ile Leu Glu Ile Ala Lys Glu Phe Asn Leu
 35 40 45
 Lys Val Val Gln Val Asn Thr Asp Glu Asn Pro Asn Leu Ala Thr Phe
 50 55 60
 Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Leu Phe Lys Lys Gly Gln
 65 70 75 80
 Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser Ile Leu Ile His
 85 90 95
 Thr Ile Asn Lys Tyr Leu
 100

<210> 73
 <211> 109
 <212> PRT
 <213> Griffithsia pacifica

<400> 73
 Met Ser Ile Ser Gln Val Ile Asp Thr Ser Phe His Glu Glu Val Ile
 1 5 10 15
 Asn Ser Arg Gln Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Ile Ala Ser Thr Ile Asp Glu Ile Ala His Asp Tyr
 35 40 45
 Lys Asp Lys Leu Lys Val Val Lys Val Asn Thr Asp Gln Asn Pro Thr
 50 55 60
 Ile Ala Thr Glu Tyr Gly Ile Arg Ser Ile Pro Thr Val Met Ile Phe
 65 70 75 80
 Ile Asn Gly Lys Lys Val Asp Thr Val Val Gly Ala Val Pro Lys Leu
 85 90 95
 Thr Leu Leu Asn Thr Leu Gln Lys His Leu Lys Ser Thr
 100 105

<210> 74
 <211> 107
 <212> PRT
 <213> Porphyra yezoensis

<400> 74
 Met Ser Val Ser Gln Val Thr Asp Ala Ser Phe Lys Gln Glu Val Ile
 1 5 10 15
 Asn Asn Asn Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Val Ser Pro Val Val Asp Glu Ile Ala Glu Glu Tyr
 35 40 45
 Glu Ser Ser Ile Lys Val Val Lys Ile Asn Thr Asp Asp Asn Pro Thr
 50 55 60
 Ile Ala Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
 65 70 75 80
 Lys Ala Gly Glu Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser
 85 90 95
 Thr Leu Ala Ser Thr Leu Asn Lys Tyr Ile Ser
 100 105

<210> 75
 <211> 107

<212> PRT
<213> Porphyra purpurea

<400> 75
Met Ser Val Ser Gln Val Thr Asp Ala Ser Phe Lys Gln Glu Val Ile
1 5 10 15
Asn Asn Asp Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
20 25 30
Pro Cys Arg Met Val Ser Pro Val Val Asp Ala Ile Ala Glu Glu Tyr
35 40 45
Glu Ser Ser Ile Lys Val Val Lys Ile Asn Thr Asp Asp Asn Pro Thr
50 55 60
Ile Ala Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
65 70 75 80
Lys Ser Gly Glu Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser
85 90 95
Thr Leu Glu Ser Thr Leu Asn Lys Tyr Ile Ser
100 105

<210> 76
<211> 114
<212> PRT
<213> Arabidopsis thaliana

<400> 76
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
1 5 10 15
Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
20 25 30
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
50 55 60
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
65 70 75 80
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
85 90 95
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
100 105 110
Leu Ala

<210> 77
<211> 110
<212> PRT
<213> Anabaena

<400> 77
Ser Lys Gly Val Ile Thr Ile Thr Asp Ala Glu Phe Glu Ser Glu Val
1 5 10 15
Leu Lys Ala Glu Gln Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys
20 25 30
Gly Pro Cys Gln Leu Met Ser Pro Leu Ile Asn Leu Ala Asn Thr
35 40 45
Tyr Ser Asp Arg Leu Lys Val Val Lys Leu Glu Ile Asp Pro Asn Pro
50 55 60
Thr Thr Val Lys Lys Tyr Lys Val Glu Gly Val Pro Ala Leu Arg Leu
65 70 75 80
Val Lys Gly Glu Gln Ile Leu Asp Ser Thr Glu Gly Val Ile Ser Lys
85 90 95
Asp Lys Leu Leu Ser Phe Leu Asp Thr His Leu Asn Asn Asn
100 105 110

<210> 78

<211> 123
 <212> PRT
 <213> Brassica napus

<400> 78
 Met Ala Ala Thr Ala Glu Val Ile Pro Ala Gly Glu Val Ile Ala Cys
 1 5 10 15
 His Thr Val Glu Asp Trp Asn Asn Lys Leu Lys Ala Ala Lys Glu Ser
 20 25 30
 Asn Lys Leu Ile Val Ile Asp Phe Thr Ala Val Trp Cys Pro Pro Cys
 35 40 45
 Arg Phe Ile Ala Pro Ile Phe Val Glu Leu Ala Lys Lys His Leu Asp
 50 55 60
 Val Val Phe Phe Lys Val Asp Val Asp Glu Leu Ala Thr Val Ala Gln
 65 70 75 80
 Glu Phe Asp Val Gln Ala Met Pro Thr Phe Val Tyr Met Lys Gly Glu
 85 90 95
 Glu Lys Leu Asp Lys Val Val Gly Ala Ala Lys Glu Glu Ile Glu Ala
 100 105 110
 Lys Leu Leu Lys His Ser Gln Val Ala Ala Ala
 115 120

<210> 79
 <211> 126
 <212> PRT
 <213> Nicotiana tabacum

<400> 79
 Met Ala Ala Asn Asp Ala Thr Ser Ser Glu Glu Gly Gln Val Phe Gly
 1 5 10 15
 Cys His Lys Val Glu Glu Trp Asn Glu Tyr Phe Lys Lys Gly Val Glu
 20 25 30
 Thr Lys Lys Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro
 35 40 45
 Cys Arg Phe Ile Ala Pro Ile Leu Ala Asp Ile Ala Lys Lys Met Pro
 50 55 60
 His Val Ile Phe Leu Lys Val Asp Val Asp Glu Leu Lys Thr Val Ser
 65 70 75 80
 Ala Glu Trp Ser Val Glu Ala Met Pro Thr Phe Val Phe Ile Lys Asp
 85 90 95
 Gly Lys Glu Val Asp Arg Val Val Gly Ala Lys Lys Glu Glu Leu Gln
 100 105 110
 Gln Thr Ile Val Lys His Ala Ala Pro Ala Thr Val Thr Ala
 115 120 125

<210> 80
 <211> 133
 <212> PRT
 <213> Arabidopsis thaliana

<400> 80
 Met Gly Gly Ala Leu Ser Thr Val Phe Gly Ser Gly Glu Asp Ala Thr
 1 5 10 15
 Ala Ala Gly Thr Glu Ser Glu Pro Ser Arg Val Leu Lys Phe Ser Ser
 20 25 30
 Ser Ala Arg Trp Gln Leu His Phe Asn Glu Ile Lys Glu Ser Asn Lys
 35 40 45
 Leu Leu Val Val Asp Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Met
 50 55 60
 Ile Glu Pro Ala Ile His Ala Met Ala Asp Lys Phe Asn Asp Val Asp
 65 70 75 80
 Phe Val Lys Leu Asp Val Asp Glu Leu Pro Asp Val Ala Lys Glu Phe
 85 90 95
 Asn Val Thr Ala Met Pro Thr Phe Val Leu Val Lys Arg Gly Lys Glu
 100 105 110

Ile Glu Arg Ile Ile Gly Ala Lys Lys Asp Glu Leu Glu Lys Lys Val
 115 120 125
 Ser Lys Leu Arg Ala
 130

<210> 81
 <211> 119
 <212> PRT
 <213> Brassica napus

<400> 81
 Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Glu Ile Asp Val
 1 5 10 15
 Trp Ala Val Gln Leu Asp Thr Ala Lys Gln Ser Asn Lys Leu Ile Val
 20 25 30
 Ile Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Met Ile Ala Pro
 35 40 45
 Val Phe Ala Asp Leu Ala Lys Lys Phe Met Ser Ser Ala Ile Phe Phe
 50 55 60
 Lys Val Asp Val Asp Glu Leu Gln Asn Val Ala Gln Glu Phe Gly Val
 65 70 75 80
 Glu Ala Met Pro Thr Phe Val Leu Ile Lys Asp Gly Asn Val Val Asp
 85 90 95
 Lys Val Val Gly Ala Arg Lys Glu Asp Leu His Ala Thr Ile Ala Lys
 100 105 110
 His Thr Gly Val Ala Thr Ala
 115

<210> 82
 <211> 118
 <212> PRT
 <213> Nicotiana tabacum

<400> 82
 Met Ala Glu Glu Gly Gln Val Ile Gly Val His Thr Val Asp Ala Trp
 1 5 10 15
 Asn Glu His Leu Gln Lys Gly Ile Asp Asp Lys Lys Leu Ile Val Val
 20 25 30
 Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Lys Phe Ile Ala Ser Phe
 35 40 45
 Tyr Ala Glu Leu Ala Lys Lys Met Pro Thr Val Thr Phe Leu Lys Val
 50 55 60
 Asp Val Asp Glu Leu Lys Ser Val Ala Thr Asp Trp Ala Val Glu Ala
 65 70 75 80
 Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Val Asp Lys Val
 85 90 95
 Val Gly Ala Lys Lys Asp Glu Leu Gln Gln Thr Ile Ala Lys His Ile
 100 105 110
 Ser Ser Thr Ser Thr Ala
 115

<210> 83
 <211> 118
 <212> PRT
 <213> Arabidopsis thaliana

<400> 83
 Met Ala Ala Glu Gly Glu Val Ile Ala Cys His Thr Val Glu Asp Trp
 1 5 10 15
 Thr Glu Lys Leu Lys Ala Ala Asn Glu Ser Lys Lys Leu Ile Val Ile
 20 25 30
 Asp Phe Thr Ala Thr Trp Cys Pro Pro Cys Arg Phe Ile Ala Pro Val
 35 40 45
 Phe Ala Asp Leu Ala Lys Lys His Leu Asp Val Val Phe Phe Lys Val

50 55 60
 Asp Val Asp Glu Leu Asn Thr Val Ala Glu Glu Phe Lys Val Gln Ala
 65 70 75 80
 Met Pro Thr Phe Ile Phe Met Lys Glu Gly Glu Ile Lys Glu Thr Val
 85 90 95
 Val Gly Ala Ala Lys Glu Glu Ile Ile Ala Asn Leu Glu Lys His Lys
 100 105 110
 Thr Val Val Ala Ala Ala
 115

<210> 84
 <211> 125
 <212> PRT
 <213> Arabidopsis thaliana

<400> 84
 Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Asn Asp Val
 1 5 10 15
 Trp Thr Val Gln Leu Asp Lys Ala Lys Glu Ser Asn Lys Leu Ile Val
 20 25 30
 Ile Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Met Ile Ala Pro
 35 40 45
 Ile Phe Asn Asp Leu Ala Lys Lys Phe Met Ser Ser Ala Ile Phe Phe
 50 55 60
 Lys Val Asp Val Asp Glu Leu Gln Ser Val Ala Lys Glu Phe Gly Val
 65 70 75 80
 Glu Ala Met Pro Thr Phe Val Phe Ile Lys Ala Gly Glu Val Val Asp
 85 90 95
 Lys Leu Val Gly Ala Asn Lys Glu Asp Leu Gln Ala Lys Ile Val Lys
 100 105 110
 His Thr Gly Val Thr Thr Val Val Asn Gln Phe Glu Ala
 115 120 125

<210> 85
 <211> 118
 <212> PRT
 <213> Arabidopsis thaliana

<400> 85
 Met Ala Gly Glu Gly Glu Val Ile Ala Cys His Thr Leu Glu Val Trp
 1 5 10 15
 Asn Glu Lys Val Lys Asp Ala Asn Glu Ser Lys Lys Leu Ile Val Ile
 20 25 30
 Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Phe Ile Ala Pro Val
 35 40 45
 Phe Ala Glu Met Ala Lys Lys Phe Thr Asn Val Val Phe Phe Lys Ile
 50 55 60
 Asp Val Asp Glu Leu Gln Ala Val Ala Gln Glu Phe Lys Val Glu Ala
 65 70 75 80
 Met Pro Thr Phe Val Phe Met Lys Glu Gly Asn Ile Ile Asp Arg Val
 85 90 95
 Val Gly Ala Ala Lys Asp Glu Ile Asn Glu Lys Leu Met Lys His Gly
 100 105 110
 Gly Leu Val Ala Ser Ala
 115

<210> 86
 <211> 123
 <212> PRT
 <213> Brassica rapa

<400> 86
 Met Ala Ala Thr Ala Glu Leu Ile Pro Ala Gly Glu Val Ile Ala Cys
 1 5 10 15

His Thr Val Glu Asp Trp Asn Asn Lys Leu Lys Ala Ala Lys Glu Ser
 20 25 30
 Asn Lys Leu Ile Val Ile Asp Phe Thr Ala Val Trp Cys Pro Pro Cys
 35 40 45
 Arg Phe Ile Ala Pro Ile Phe Val Glu Leu Ala Lys Lys His Leu Asp
 50 55 60
 Val Val Phe Phe Lys Val Asp Val Asp Glu Leu Ala Thr Val Ala Lys
 65 70 75 80
 Glu Phe Asp Val Gln Ala Met Pro Thr Phe Val Tyr Met Lys Gly Glu
 85 90 95
 Glu Lys Leu Asp Lys Val Val Gly Ala Ala Lys Glu Glu Ile Glu Ala
 100 105 110
 Lys Leu Leu Lys His Ser Gln Val Ala Ala Ala
 115 120

<210> 87
 <211> 112
 <212> PRT
 <213> Chlamydomonas reinhardtii

<400> 87
 Gly Gly Ser Val Ile Val Ile Asp Ser Lys Ala Ala Trp Asp Ala Gln
 1 5 10 15
 Leu Ala Lys Gly Lys Glu Glu His Lys Pro Ile Val Val Asp Phe Thr
 20 25 30
 Ala Thr Trp Cys Gly Pro Cys Lys Met Ile Ala Pro Leu Phe Glu Thr
 35 40 45
 Leu Ser Asn Asp Tyr Ala Gly Lys Val Ile Phe Leu Lys Val Asp Val
 50 55 60
 Asp Ala Val Ala Ala Val Ala Glu Ala Ala Gly Ile Thr Ala Met Pro
 65 70 75 80
 Thr Phe His Val Tyr Lys Asp Gly Val Lys Ala Asp Asp Leu Val Gly
 85 90 95
 Ala Ser Gln Asp Lys Leu Lys Ala Leu Val Ala Lys His Ala Ala Ala
 100 105 110

<210> 88
 <211> 116
 <212> PRT
 <213> Fagopyrum esculentum

<400> 88
 Met Ala Glu Glu Ala Gln Val Ile Ala Cys His Thr Val Gln Glu Trp
 1 5 10 15
 Asn Glu Lys Phe Gln Lys Ala Lys Asp Ser Gly Lys Leu Ile Val Ile
 20 25 30
 Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Thr Pro Tyr
 35 40 45
 Val Ser Glu Leu Ala Lys Lys Phe Pro His Val Ala Phe Phe Lys Val
 50 55 60
 Asp Val Asp Asp Leu Lys Asp Val Ala Glu Glu Tyr Lys Val Glu Ala
 65 70 75 80
 Met Pro Ser Phe Val Ile Leu Lys Glu Gly Gln Glu Val Glu Arg Ile
 85 90 95
 Val Gly Ala Arg Lys Asp Glu Leu Leu His Lys Ile Ala Val His Ala
 100 105 110
 Pro Ile Thr Ala
 115

<210> 89
 <211> 122
 <212> PRT
 <213> Oryza sativa

<400> 89

Met Ala Ala Glu Glu Gly Val Val Ile Ala Cys His Asn Lys Asp Glu
1 5 10 15
Phe Asp Ala Gln Met Thr Lys Ala Lys Glu Ala Gly Lys Val Val Ile
20 25 30
Ile Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Val Phe Ala Glu Tyr Ala Lys Lys Phe Pro Gly Ala Val Phe Leu Lys
50 55 60
Val Asp Val Asp Glu Leu Lys Glu Val Ala Glu Lys Tyr Asn Val Glu
65 70 75 80
Ala Met Pro Thr Phe Leu Phe Ile Lys Asp Gly Ala Glu Ala Asp Lys
85 90 95
Val Val Gly Ala Arg Lys Asp Asp Leu Gln Asn Thr Ile Val Lys His
100 105 110
Val Gly Ala Thr Ala Ala Ser Ala Ser Ala
115 120

<210> 90

<211> 125

<212> PRT

<213> Picea mariana

<400> 90

Met Ala Glu Gly Asn Val Phe Ala Cys His Ser Thr Glu Gly Trp Arg
1 5 10 15
Ser Lys Leu Gln Glu Ala Ile Asp Thr Lys Arg Leu Val Ala Val Asp
20 25 30
Phe Thr Ala Thr Trp Cys Gly Pro Cys Arg Val Ile Gly Pro Val Phe
35 40 45
Val Glu Leu Ser Lys Lys Phe Pro Glu Ile Phe Phe Leu Lys Val Asp
50 55 60
Val Asp Glu Leu Arg Asp Val Ala Gln Glu Trp Asp Val Glu Ala Met
65 70 75 80
Pro Thr Phe Ile Phe Ile Lys Asp Gly Lys Ala Val Asp Lys Val Val
85 90 95
Gly Ala Lys Lys Asp Asp Leu Glu Arg Lys Val Ala Ala Leu Ala Ala
100 105 110
Ala Ala Thr Thr Thr Glu Ala Thr Leu Pro Ala Gln Ala
115 120 125

<210> 91

<211> 118

<212> PRT

<213> Ricinus communis

<400> 91

Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Val Glu Ala
1 5 10 15
Trp Asn Glu Gln Leu Gln Lys Gly Asn Asp Thr Lys Gly Leu Ile Val
20 25 30
Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45
Phe Leu Ala Glu Leu Ala Lys Lys Leu Pro Asn Val Thr Phe Leu Lys
50 55 60
Val Asp Val Asp Glu Leu Lys Thr Val Ala His Glu Trp Ala Val Glu
65 70 75 80
Ser Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Met Asp Lys
85 90 95
Val Val Gly Ala Lys Lys Asp Glu Leu Gln Gln Thr Ile Ala Lys His
100 105 110
Met Ala Thr Ala Ser Thr
115

<210> 92
 <211> 126
 <212> PRT
 <213> triticum aestivum

<400> 92
 Ala Ala Ser Ala Ala Thr Ala Thr Ala Thr Ala Ala Ala Val Gly Ala
 1 5 10 15
 Gly Glu Val Ile Ser Val His Ser Leu Glu Gln Trp Thr Met Gln Ile
 20 25 30
 Glu Glu Ala Asn Ala Ala Lys Lys Leu Val Val Ile Asp Phe Thr Ala
 35 40 45
 Ser Trp Cys Gly Pro Cys Arg Ile Met Ala Pro Ile Phe Ala Asp Leu
 50 55 60
 Ala Lys Lys Phe Pro Ala Ala Val Phe Leu Lys Val Asp Val Asp Glu
 65 70 75 80
 Leu Lys Pro Ile Ala Glu Gln Phe Ser Val Glu Ala Met Pro Thr Phe
 85 90 95
 Leu Phe Met Lys Glu Gly Asp Val Lys Asp Arg Val Val Gly Ala Ile
 100 105 110
 Lys Glu Glu Leu Thr Thr Lys Val Gly Leu His Ala Ala Gln
 115 120 125

<210> 93
 <211> 109
 <212> PRT
 <213> Aspergillus nidulans

<400> 93
 Gly Ala Ser Glu His Val Pro Pro Ile Thr Ser Lys Ala Glu Phe Gln
 1 5 10 15
 Glu Lys Val Leu Asn Ala Lys Gly Phe Val Val Val Asp Cys Phe Ala
 20 25 30
 Thr Trp Cys Gly Pro Cys Lys Ala Ile Ala Pro Thr Val Glu Lys Phe
 35 40 45
 Ala Gln Thr Tyr Thr Asp Ala Ser Phe Tyr Gln Ile Asp Val Asp Glu
 50 55 60
 Leu Ser Glu Val Ala Ala Glu Leu Gly Ile Arg Ala Met Pro Thr Phe
 65 70 75 80
 Leu Leu Phe Lys Asp Gly Gln Lys Val Ser Asp Val Val Gly Ala Asn
 85 90 95
 Pro Gly Ala Leu Glu Ala Gly Ile Lys Ala Leu Leu Ala
 100 105

<210> 94
 <211> 105
 <212> PRT
 <213> Alicyclobacillus

<400> 94
 Ala Thr Met Thr Leu Thr Asp Ala Asn Phe Gln Gln Ala Ile Gln Gly
 1 5 10 15
 Asp Lys Pro Val Leu Val Asp Phe Trp Ala Ala Trp Cys Gly Pro Cys
 20 25 30
 Arg Met Met Ala Pro Val Leu Glu Glu Phe Ala Glu Ala His Ala Asp
 35 40 45
 Lys Val Thr Val Ala Lys Leu Asn Val Asp Glu Asn Pro Glu Thr Thr
 50 55 60
 Ser Gln Phe Gly Ile Met Ser Ile Pro Thr Leu Ile Leu Phe Lys Gly
 65 70 75 80
 Gly Arg Pro Val Lys Gln Leu Ile Gly Tyr Gln Pro Lys Glu Gln Leu
 85 90 95
 Glu Ala Gln Leu Ala Asp Val Leu Gln
 100 105

<210> 95
 <211> 91
 <212> PRT
 <213> Archaeoglobus fulgidus

<400> 95
 Met Val Met Met Lys Leu Phe Thr Ser Pro Thr Cys Pro Tyr Cys Pro
 1 5 10 15
 Lys Ala Glu Lys Val Val Ser Lys Val Ala Lys Glu Glu Gly Val Leu
 20 25 30
 Ala Ile Asn Leu Pro Val Asn Thr Asp Glu Gly Leu Lys Glu Ala Leu
 35 40 45
 Lys Phe Gly Ile Arg Gly Val Pro Ala Leu Val Ile Asn Asp Lys Tyr
 50 55 60
 Leu Ile Leu Gly Val Pro Asp Glu Gly Glu Leu Arg Gln Leu Ile Arg
 65 70 75 80
 Lys Leu Lys Gly Gly Glu Glu Tyr Gly Ala Ser
 85 90

<210> 96
 <211> 103
 <212> PRT
 <213> Bacillus subtilis

<400> 96
 Ala Ile Val Lys Ala Thr Asp Gln Ser Phe Ser Ala Glu Thr Ser Glu
 1 5 10 15
 Gly Val Val Leu Ala Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Ile Ala Pro Val Leu Glu Glu Leu Asp Gln Glu Met Gly Asp Lys
 35 40 45
 Leu Lys Ile Val Lys Ile Asp Val Asp Glu Asn Gln Glu Thr Ala Gly
 50 55 60
 Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Leu Val Leu Lys Asp Gly
 65 70 75 80
 Glu Val Val Glu Thr Ser Val Gly Phe Lys Pro Lys Glu Ala Leu Gln
 85 90 95
 Glu Leu Val Asn Lys His Leu
 100

<210> 97
 <211> 87
 <212> PRT
 <213> Bacteriophage T4

<400> 97
 Met Phe Lys Val Tyr Gly Tyr Asp Ser Asn Ile His Lys Cys Val Tyr
 1 5 10 15
 Cys Asp Asn Ala Lys Arg Leu Leu Thr Val Lys Lys Gln Pro Phe Glu
 20 25 30
 Phe Ile Asn Ile Met Pro Glu Lys Gly Val Phe Asp Asp Glu Lys Ile
 35 40 45
 Ala Glu Leu Leu Thr Lys Leu Gly Arg Asp Thr Gln Ile Gly Leu Thr
 50 55 60
 Met Pro Gln Val Phe Ala Pro Asp Gly Ser His Ile Gly Gly Phe Asp
 65 70 75 80
 Gln Leu Arg Glu Tyr Phe Lys
 85

<210> 98
 <211> 117
 <212> PRT
 <213> Borrelia burgdorferi

<400> 98

Met Ala Ile Ser Leu Thr Glu Glu Asp Phe Val Val Lys Val Phe Asp
1 5 10 15
Tyr Lys Asn Asp Lys Glu Trp Ser Phe Arg Gly Asp Arg Pro Ala Ile
20 25 30
Ile Asp Phe Tyr Ala Asn Trp Cys Gly Pro Cys Lys Met Leu Ser Pro
35 40 45
Ile Phe Glu Lys Leu Ser Lys Lys Tyr Glu Asn Ser Ile Asp Phe Tyr
50 55 60
Lys Val Asp Thr Asp Lys Glu Gln Asp Ile Ser Ser Ala Ile Gly Val
65 70 75 80
Gln Ser Leu Pro Thr Ile Leu Phe Ile Pro Val Asp Gly Lys Pro Lys
85 90 95
Val Ser Val Gly Phe Leu Gln Glu Asp Ala Phe Glu Asn Ile Ile Lys
100 105 110
Asp Phe Phe Gly Phe
115

<210> 99

<211> 108

<212> PRT

<213> Buchnera aphidicola

<400> 99

Met Asn Lys Ile Ile Glu Leu Thr Asp Gln Asn Phe Glu Glu Gln Val
1 5 10 15
Leu Asn Ser Lys Ser Phe Phe Leu Val Asp Phe Trp Ala Gln Trp Cys
20 25 30
Asn Pro Cys Lys Ile Leu Ala Pro Ile Leu Glu Glu Ile Ser Lys Glu
35 40 45
Tyr Ser Asn Lys Val Ile Val Gly Lys Leu Asn Ile Glu Glu Asn Pro
50 55 60
Asn Thr Ala Pro Val Tyr Ser Ile Arg Ser Ile Pro Thr Leu Leu Leu
65 70 75 80
Phe Asn Asn Ser Glu Val Leu Ala Thr Lys Val Gly Ala Val Ser Lys
85 90 95
Leu Glu Leu Lys Glu Phe Leu Asp Glu Asn Ile Asn
100 105

<210> 100

<211> 108

<212> PRT

<213> aphidicola

<400> 100

Met Asn Lys Ile Ile Glu Leu Thr Asp Gln Asn Phe Glu Lys Glu Val
1 5 10 15
Leu Glu His Lys Ser Phe Val Leu Val Asp Phe Trp Ala Glu Trp Cys
20 25 30
Asn Pro Cys Lys Ile Leu Ala Pro Ile Leu Glu Glu Ile Ala Gln Glu
35 40 45
Tyr Phe Asn Lys Ile Lys Val Gly Lys Leu Asn Ile Glu Lys Asn Pro
50 55 60
Asn Thr Ala Pro Ile Tyr Ser Ile Arg Gly Ile Pro Ala Leu Leu Leu
65 70 75 80
Phe His Gly Arg Glu Val Leu Ala Thr Lys Val Gly Ala Ile Ser Lys
85 90 95
Leu Gln Leu Lys Asp Phe Leu Asp Glu Asn Ile Lys
100 105

<210> 101

<211> 108

<212> PRT

<213> Chlorobium limicola

<220>
 <221> VARIANT
 <222> 16, 17, 38, 42, 45, 54, 55, 58, 66, 72, 75, 79, 80, 81, 94,
 99, 103
 <223> Xaa = Any Amino Acid

<400> 101
 Ala Gly Lys Tyr Phe Glu Ala Thr Asp Lys Asn Phe Gln Thr Glu Xaa
 1 5 10 15
 Xaa Asp Ser Asp Lys Ala Val Leu Val Asp Phe Trp Ala Ser Trp Cys
 20 25 30
 Gly Pro Cys Met Met Xaa Gly Pro Val Xaa Glu Gln Xaa Ala Asp Asp
 35 40 45
 Tyr Glu Gly Lys Ala Xaa Xaa Ala Lys Xaa Asn Val Asp Glu Asn Pro
 50 55 60
 Asn Xaa Ala Gly Gln Tyr Gly Xaa Arg Ser Xaa Pro Thr Met Xaa Xaa
 65 70 75 80
 Xaa Lys Gly Gly Lys Val Val Asp Gln Met Val Gly Ala Xaa Pro Lys
 85 90 95
 Asn Met Xaa Ala Lys Lys Xaa Asp Glu His Ile Gly
 100 105

<210> 102
 <211> 102
 <212> PRT
 <213> Chlamydia muridarum

<400> 102
 Met Val Gln Ile Val Ser Gln Asp Asn Phe Ala Asp Ser Ile Ala Ser
 1 5 10 15
 Gly Leu Val Leu Val Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Leu Thr Pro Val Leu Glu Ala Leu Ala Ala Glu Leu Pro Tyr Val
 35 40 45
 Thr Ile Leu Lys Leu Asp Ile Asp Ala Ser Pro Arg Pro Ala Glu Gln
 50 55 60
 Phe Gly Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Glu Arg Ser Val Gly Leu Lys Asp Lys Asp Ser Leu Val Lys
 85 90 95
 Leu Ile Ser Lys His Gln
 100

<210> 103
 <211> 102
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 103
 Met Val Lys Ile Ile Ser Ser Glu Asn Phe Asp Ser Phe Ile Ala Ser
 1 5 10 15
 Gly Leu Val Leu Val Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Arg
 20 25 30
 Met Leu Thr Pro Ile Leu Glu Asn Leu Ala Ala Glu Leu Pro His Val
 35 40 45
 Thr Ile Gly Lys Ile Asn Ile Asp Glu Asn Ser Lys Pro Ala Glu Thr
 50 55 60
 Tyr Glu Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Asn
 65 70 75 80
 Glu Val Ala Arg Val Val Gly Leu Lys Asp Lys Glu Phe Leu Thr Asn
 85 90 95
 Leu Ile Asn Lys His Ala
 100

<210> 104
 <211> 102
 <212> PRT
 <213> Psittaci

<400> 104
 Met Val Lys Val Val Ser Ala Glu Asn Phe Asn Ser Phe Ile Ala Thr
 1 5 10 15
 Gly Leu Val Leu Ile Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Leu Thr Pro Val Leu Glu Ser Leu Glu Ala Glu Val Ser Ser Val
 35 40 45
 Leu Ile Gly Lys Val Asn Ile Asp Asp His Pro Ala Pro Ala Glu Gln
 50 55 60
 Tyr Gly Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Asp Arg Val Val Gly Leu Lys Asp Lys Asp Ser Leu Ile Arg
 85 90 95
 Leu Ile Asn Gln His Ser
 100

<210> 105
 <211> 102
 <212> PRT
 <213> Chlamydia trachomatis

<400> 105
 Met Val Gln Val Val Ser Gln Glu Asn Phe Ala Asp Ser Ile Ala Ser
 1 5 10 15
 Gly Leu Val Leu Ile Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Leu Thr Pro Val Leu Glu Ala Leu Ala Ala Glu Leu Pro His Val
 35 40 45
 Thr Ile Leu Lys Val Asp Ile Asp Ser Ser Pro Arg Pro Ala Glu Gln
 50 55 60
 Tyr Ser Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Glu Arg Ser Val Gly Leu Lys Asp Lys Asp Ser Leu Ile Lys
 85 90 95
 Leu Ile Ser Lys His Gln
 100

<210> 106
 <211> 105
 <212> PRT
 <213> Corynebacterium nephridii

<400> 106
 Ala Thr Val Lys Val Asp Asn Ser Asn Phe Gln Ser Asp Val Leu Gln
 1 5 10 15
 Ser Ser Glu Pro Val Val Val Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Lys Met Ile Ala Pro Ala Leu Asp Glu Ile Ala Thr Glu Met Ala
 35 40 45
 Gly Gln Val Lys Ile Ala Lys Val Asn Ile Asp Glu Asn Pro Glu Leu
 50 55 60
 Ala Ala Gln Phe Gly Val Arg Ser Ile Pro Thr Leu Leu Met Phe Lys
 65 70 75 80
 Asp Gly Glu Leu Ala Ala Asn Met Val Gly Ala Ala Pro Lys Ser Arg
 85 90 95
 Leu Ala Asp Trp Ile Lys Ala Ser Ala
 100 105

<210> 107

<211> 107
 <212> PRT
 <213> Cornybacterium nephridii

<400> 107
 Ser Ala Thr Ile Val Asn Thr Thr Asp Glu Asn Phe Gln Ala Asp Val
 1 5 10 15
 Leu Asp Ala Glu Thr Pro Val Leu Val Asp Phe Trp Ala Gly Trp Cys
 20 25 30
 Ala Pro Cys Lys Ala Ile Ala Pro Val Leu Glu Glu Leu Ser Asn Glu
 35 40 45
 Tyr Ala Gly Lys Val Lys Ile Val Lys Val Asp Val Thr Ser Cys Glu
 50 55 60
 Asp Thr Ala Val Lys Tyr Asn Ile Arg Asn Ile Pro Ala Leu Leu Met
 65 70 75 80
 Phe Lys Asp Gly Glu Val Val Ala Gln Gln Val Gly Ala Ala Pro Arg
 85 90 95
 Ser Lys Leu Ala Ala Phe Ile Asp Gln Asn Ile
 100 105

<210> 108
 <211> 145
 <212> PRT
 <213> Cornybacterium nephridii

<400> 108
 Met Ile Ile Val Cys Ala Ser Cys Gly Ala Lys Asn Arg Val Pro Glu
 1 5 10 15
 Glu Lys Leu Ala Val His Pro Asn Cys Gly Gln Cys His Gln Ala Leu
 20 25 30
 Leu Pro Leu Glu Pro Ile Glu Leu Asn Glu Gln Asn Phe Ser Asn Phe
 35 40 45
 Ile Ser Asn Ser Asp Leu Pro Val Leu Ile Asp Leu Trp Ala Glu Trp
 50 55 60
 Cys Gly Pro Cys Lys Met Met Ala Pro His Phe Ala Gln Val Ala Lys
 65 70 75 80
 Gln Asn Pro Tyr Val Val Phe Ala Lys Ile Asp Thr Glu Ala Asn Pro
 85 90 95
 Arg Leu Ser Ala Ala Phe Asn Val Arg Ser Ile Pro Thr Leu Val Leu
 100 105 110
 Met Asn Lys Thr Thr Glu Val Ala Arg Ile Ser Gly Ala Leu Arg Thr
 115 120 125
 Leu Glu Leu Gln Gln Trp Leu Asp Gln Gln Leu Gln Gln Gln Gly
 130 135 140
 Asn
 145

<210> 109
 <211> 107
 <212> PRT
 <213> Chromatium vinosum

<220>
 <221> VARIANT
 <222> 17, 38, 42, 55, 58, 60, 72, 107
 <223> Xaa = Any Amino Acid

<400> 109
 Ser Asp Ser Ile Val His Val Thr Asp Asp Ser Phe Glu Glu Glu Val
 1 5 10 15
 Xaa Lys Ser Pro Asp Pro Val Leu Val Asp Tyr Trp Ala Asp Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Xaa Ala Pro Val Xaa Asp Glu Ile Ala Asp Glu
 35 40 45
 Tyr Ala Gly Arg Val Lys Xaa Ala Lys Xaa Asn Xaa Asp Glu Asn Pro

50 55 60
 Asn Thr Pro Pro Arg Tyr Gly Xaa Arg Gly Ile Pro Thr Leu Met Leu
 65 70 75 80
 Phe Arg Gly Gly Glu Val Glu Ala Thr Lys Val Gly Ala Val Ser Lys
 85 90 95
 Ser Gln Leu Thr Ala Phe Leu Asp Ser Asn Xaa
 100 105

<210> 110
 <211> 107
 <212> PRT
 <213> Clostridium litorale

<400> 110
 Met Leu Met Leu Asp Lys Asp Thr Phe Lys Thr Glu Val Leu Glu Gly
 1 5 10 15
 Thr Gly Tyr Val Leu Val Asp Tyr Phe Ser Asp Gly Cys Val Pro Cys
 20 25 30
 Lys Ala Leu Met Pro Ala Val Glu Glu Leu Ser Lys Lys Tyr Glu Gly
 35 40 45
 Arg Val Val Phe Ala Lys Leu Asn Thr Thr Gly Ala Arg Arg Leu Ala
 50 55 60
 Ile Ser Gln Lys Ile Leu Gly Leu Pro Thr Leu Ser Leu Tyr Lys Asp
 65 70 75 80
 Gly Val Lys Val Asp Glu Val Thr Lys Asp Asp Ala Thr Ile Glu Asn
 85 90 95
 Ile Glu Ala Met Val Glu Glu His Ile Ser Lys
 100 105

<210> 111
 <211> 40
 <212> PRT
 <213> Clostridium sporogenes

<400> 111
 Met Leu Val Leu Asp Lys Lys Thr Phe Glu Glu Glu Val Leu Lys Thr
 1 5 10 15
 Lys Gly Tyr Val Leu Val Asp Tyr Phe Gly Asp Gly Cys Val Pro Cys
 20 25 30
 Glu Ala Leu Met Pro Asp Val Glu
 35 40

<210> 112
 <211> 33
 <212> PRT
 <213> Clostridium sticklandii

<400> 112
 Met Phe Glu Leu Asp Lys Asp Thr Phe Glu Thr Glu Val Leu Gln Gly
 1 5 10 15
 Thr Gly Tyr Val Leu Val Asp Phe Trp Ser Glu Gly Cys Glu Pro Cys
 20 25 30
 Lys

<210> 113
 <211> 106
 <212> PRT
 <213> Coprinus comatus

<400> 113
 Met Val Gln Val Ile Ser Asn Leu Asp Glu Phe Asn Lys Leu Thr Asn
 1 5 10 15

Ser	Gly	Lys	Ile	Ile	Ile	Ile	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro
			20					25					30		
Cys	Arg	Val	Ile	Ser	Pro	Ile	Phe	Glu	Lys	Phe	Ser	Glu	Lys	Tyr	Gly
		35					40					45			
Ala	Asn	Asn	Ile	Val	Phe	Ala	Lys	Val	Asp	Val	Asp	Thr	Ala	Ser	Asp
	50					55					60				
Ile	Ser	Glu	Glu	Ala	Lys	Ile	Arg	Ala	Met	Pro	Thr	Phe	Gln	Val	Tyr
65					70					75					80
Lys	Asp	Gly	Gln	Lys	Ile	Asp	Glu	Leu	Val	Gly	Ala	Asn	Pro	Thr	Ala
				85					90					95	
Leu	Glu	Ser	Leu	Val	Gln	Lys	Ser	Leu	Ala						
			100					105							

<210> 114
 <211> 105
 <212> PRT
 <213> Dictyostelium discoideum

Met	Ser	Asn	Arg	Val	Ile	His	Val	Ser	Ser	Cys	Glu	Glu	Leu	Asp	Lys
1				5					10					15	
His	Leu	Arg	Asp	Glu	Arg	Val	Val	Val	Asp	Phe	Ser	Ala	Val	Trp	Cys
			20					25					30		
Gly	Pro	Cys	Arg	Ala	Ile	Ser	Pro	Val	Phe	Glu	Lys	Leu	Ser	Asn	Glu
		35					40					45			
Phe	Ile	Thr	Phe	Thr	Phe	Leu	His	Val	Asp	Ile	Asp	Lys	Leu	Asn	Val
	50					55					60				
His	Pro	Ile	Val	Ser	Lys	Ile	Lys	Ser	Val	Pro	Thr	Phe	His	Phe	Tyr
65					70					75					80
Arg	Asn	Gly	Ser	Lys	Val	Ser	Glu	Phe	Ser	Gly	Ala	Ser	Glu	Ser	Ile
				85					90					95	
Leu	Arg	Ser	Thr	Leu	Glu	Ala	Asn	Lys							
			100					105							

<210> 115
 <211> 88
 <212> PRT
 <213> Dictyostelium discoideum

Met	Ser	Arg	Val	Ile	His	Ile	Ser	Ser	Asn	Glu	Glu	Leu	Asp	Lys	His
1				5					10					15	
Leu	Gln	Ala	Glu	Arg	Leu	Val	Ile	Asp	Phe	Ser	Ala	Ala	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Ala	Ile	Ser	Pro	Val	Phe	Glu	Lys	Leu	Ser	Asn	Glu	Phe
		35					40					45			
Val	Thr	Phe	Thr	Phe	Val	His	Val	Asp	Ile	Asp	Lys	Leu	Ser	Gly	His
	50					55					60				
Pro	Ile	Val	Lys	Glu	Ile	Arg	Ser	Val	Pro	Thr	Phe	Tyr	Phe	Tyr	Arg
65					70					75					80
Asn	Gly	Ala	Lys	Val	Ser	Glu	Phe								
				85											

<210> 116
 <211> 88
 <212> PRT
 <213> Dictyostelium discoideum

Met	Ser	Arg	Val	Ile	His	Ile	Ser	Ser	Asn	Glu	Glu	Leu	Asp	Lys	His
1				5					10					15	
Leu	Gln	Ala	Glu	Arg	Leu	Val	Ile	Asp	Phe	Ser	Ala	Ala	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Ala	Ile	Ser	Pro	Val	Phe	Glu	Lys	Leu	Ser	Asn	Glu	Phe

35 40 45
 Val Thr Phe Thr Phe Val His Val Asp Ile Asp Lys Leu Ser Gly His
 50 55 60
 Pro Ile Val Lys Glu Ile Arg Ser Val Pro Thr Phe Tyr Phe Tyr Arg
 65 70 75 80
 Asn Gly Ala Lys Val Ser Glu Phe
 85

<210> 117
 <211> 108
 <212> PRT
 <213> E coli, salmonella typhimurium

<400> 117
 Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp Val
 1 5 10 15
 Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp Glu
 35 40 45
 Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn Pro
 50 55 60
 Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu Leu
 65 70 75 80
 Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser Lys
 85 90 95
 Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala
 100 105

<210> 118
 <211> 105
 <212> PRT
 <213> Synechocystis

<400> 118
 Met Ala Val Lys Lys Gln Phe Ala Asn Phe Ala Glu Met Leu Ala Gly
 1 5 10 15
 Ser Pro Lys Pro Val Leu Val Asp Phe Tyr Ala Thr Trp Cys Gly Pro
 20 25 30
 Cys Gln Met Met Ala Pro Ile Leu Glu Gln Val Gly Ser His Leu Arg
 35 40 45
 Gln Gln Ile Gln Val Val Lys Ile Asp Thr Asp Lys Tyr Pro Ala Ile
 50 55 60
 Ala Thr Gln Tyr Gln Ile Gln Ser Leu Pro Thr Leu Val Leu Phe Lys
 65 70 75 80
 Gln Gly Gln Pro Val His Arg Met Glu Gly Val Gln Gln Ala Ala Gln
 85 90 95
 Leu Ile Gln Gln Leu Gln Val Phe Val
 100 105

<210> 119
 <211> 139
 <212> PRT
 <213> E. coli

<400> 119
 Met Asn Thr Val Cys Thr His Cys Gln Ala Ile Asn Arg Ile Pro Asp
 1 5 10 15
 Asp Arg Ile Glu Asp Ala Ala Lys Cys Gly Arg Cys Gly His Asp Leu
 20 25 30
 Phe Asp Gly Glu Val Ile Asn Ala Thr Gly Glu Thr Leu Asp Lys Leu
 35 40 45
 Leu Lys Asp Asp Leu Pro Val Val Ile Asp Phe Trp Ala Pro Trp Cys
 50 55 60

Gly Pro Cys Arg Asn Phe Ala Pro Ile Phe Glu Asp Val Ala Gln Glu
65 70 75 80
Arg Ser Gly Lys Val Arg Phe Val Lys Val Asn Thr Glu Ala Glu Arg
85 90 95
Glu Leu Ser Ser Arg Phe Gly Ile Arg Ser Ile Pro Thr Ile Met Ile
100 105 110
Phe Lys Asn Gly Gln Val Val Asp Met Leu Asn Gly Ala Val Pro Lys
115 120 125
Ala Pro Phe Asp Ser Trp Leu Asn Glu Ser Leu
130 135

<210> 120
<211> 110
<212> PRT
<213> Eubacterium acidaminophilum

<400> 120
Met Ser Ala Leu Leu Val Glu Ile Asp Lys Asp Gln Phe Gln Ala Glu
1 5 10 15
Val Leu Glu Ala Glu Gly Tyr Val Leu Val Asp Tyr Phe Ser Asp Gly
20 25 30
Cys Val Pro Cys Lys Ala Leu Met Pro Asp Val Glu Glu Leu Ala Ala
35 40 45
Lys Tyr Glu Gly Lys Val Ala Phe Arg Lys Phe Asn Thr Ser Ser Ala
50 55 60
Arg Arg Leu Ala Ile Ser Gln Lys Ile Leu Gly Leu Pro Thr Ile Thr
65 70 75 80
Leu Tyr Lys Gly Gly Gln Lys Val Glu Glu Val Thr Lys Asp Asp Ala
85 90 95
Thr Arg Glu Asn Ile Asp Ala Met Ile Ala Lys His Val Gly
100 105 110

<210> 121
<211> 107
<212> PRT
<213> Haemophilus influenzae

<400> 121
Met Ser Glu Val Leu His Ile Asn Asp Ala Asp Phe Glu Ser Val Val
1 5 10 15
Val Asn Ser Asp Ile Pro Ile Leu Leu Asp Phe Trp Ala Pro Trp Cys
20 25 30
Gly Pro Cys Lys Met Ile Ala Pro Val Leu Asp Glu Leu Ala Pro Glu
35 40 45
Phe Ala Gly Lys Val Lys Ile Val Lys Met Asn Val Asp Asp Asn Gln
50 55 60
Ala Thr Pro Ala Gln Phe Gly Val Arg Ser Ile Pro Thr Leu Leu Leu
65 70 75 80
Ile Lys Asn Gly Gln Val Val Ala Thr Gln Val Gly Ala Leu Pro Lys
85 90 95
Thr Gln Leu Ala Asn Phe Ile Asn Gln His Ile
100 105

<210> 122
<211> 167
<212> PRT
<213> Haemophilus influenzae

<400> 122
Met Lys Ile Lys Lys Leu Leu Lys Asn Gly Leu Ser Leu Phe Leu Thr
1 5 10 15
Phe Ile Val Ile Thr Ser Ile Leu Asp Phe Val Arg Arg Pro Val Val
20 25 30
Pro Glu Glu Ile Asn Lys Ile Thr Leu Gln Asp Leu Gln Gly Asn Thr

Variable	Unit	Mean	Stdev	Min	Max	Q1	Q3	Median
Age	Years	45.2	12.5	25	65	35	55	40
Gender	Male/Female	0.65	0.48	0	1	0	1	0.65
Height	cm	175.3	7.8	160	190	165	185	170
Weight	kg	78.5	15.2	60	100	65	90	70
HeartRate	b/min	72.1	10.3	60	90	65	80	70
BloodPressure	mmHg	120.5	15.7	100	140	110	130	120
Cholesterol	mg/dL	185.2	45.8	150	220	160	200	175
Glucose	mg/dL	95.3	18.5	70	120	80	110	90
HemoglobinA1c	%	5.8	0.5	5.0	6.5	5.2	6.0	5.5
Diabetes	Yes/No	0.15	0.36	0	1	0	1	0.15
Smoking	Yes/No	0.35	0.48	0	1	0	1	0.35
AlcoholConsumption	g/day	15.2	25.3	0	50	0	30	10
PhysicalActivity	min/week	120.5	80.2	0	300	0	200	60
StressLevel	1-5	3.2	1.1	1	5	2	4	3
SleepHours	hours/night	7.5	1.2	6	9	6.5	8.5	7.0
FamilyHistory	Yes/No	0.25	0.43	0	1	0	1	0.25
Medication	Yes/No	0.10	0.30	0	1	0	1	0.10
Comorbidities	Count	1.5	1.2	0	3	0	2	1
OverallHealthScore	1-10	6.8	1.5	5	8	6	7	6.5

<400>	123															
Met	Ser	His	Tyr	Ile	Glu	Leu	Thr	Glu	Glu	Asn	Phe	Glu	Ser	Thr	Ile	
1				5					10					15		
Lys	Lys	Gly	Val	Ala	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly	Pro	
			20					25					30			
Cys	Lys	Met	Leu	Ser	Pro	Val	Ile	Asp	Glu	Leu	Ala	Ser	Glu	Tyr	Glu	
		35					40					45				
Gly	Lys	Ala	Lys	Ile	Cys	Lys	Val	Asn	Thr	Asp	Glu	Gln	Glu	Glu	Leu	
		50				55					60					
Ser	Ala	Lys	Phe	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Leu	Leu	Phe	Thr	Lys	
65				70						75					80	
Asp	Gly	Glu	Val	Val	His	Gln	Leu	Val	Gly	Val	Gln	Thr	Lys	Val	Ala	
			85						90					95		
Leu	Lys	Glu	Gln	Leu	Asn	Lys	Leu	Leu	Gly							
			100					105								

[illegible]

-78-

<400> 125
 Met Ser Lys Val Lys Ile Glu Leu Phe Thr Ser Pro Met Cys Pro His
 1 5 10 15
 Cys Pro Ala Ala Lys Arg Val Val Glu Val Ala Asn Glu Met Pro
 20 25 30
 Asp Ala Val Glu Val Glu Tyr Ile Asn Val Met Glu Asn Pro Gln Lys
 35 40 45
 Ala Met Glu Tyr Gly Ile Met Ala Val Pro Thr Ile Val Ile Asn Gly
 50 55 60
 Asp Val Glu Phe Ile Gly Ala Pro Thr Lys Glu Ala Leu Val Glu Ala
 65 70 75 80
 Ile Lys Lys Arg Leu
 85

<210> 126
 <211> 102
 <212> PRT
 <213> Mycoplasma genitalium

<400> 126
 Met Val Thr Glu Ile Arg Ser Leu Lys Gln Leu Glu Glu Ile Phe Ser
 1 5 10 15
 Ala Lys Lys Asn Val Ile Val Asp Phe Trp Ala Ala Trp Cys Gly Pro
 20 25 30
 Cys Lys Leu Thr Ser Pro Glu Phe Gln Lys Ala Ala Asp Glu Phe Ser
 35 40 45
 Asp Ala Gln Phe Val Lys Val Asn Val Asp Asp His Thr Asp Ile Ala
 50 55 60
 Ala Ala Tyr Asn Ile Thr Ser Leu Pro Thr Ile Val Val Phe Glu Asn
 65 70 75 80
 Gly Val Glu Lys Lys Arg Ala Ile Gly Phe Met Pro Lys Thr Lys Ile
 85 90 95
 Ile Asp Leu Phe Asn Asn
 100

<210> 127
 <211> 458
 <212> PRT
 <213> mycobacterium leprae

<400> 127
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
 1 5 10 15
 Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
 20 25 30
 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala
 100 105 110
 Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile
 115 120 125
 Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr
 130 135 140
 Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg
 165 170 175
 Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile
 180 185 190

Met	Leu	Gly	Arg	Ala	Arg	Asn	Asn	Asp	Lys	Ile	Lys	Phe	Ile	Thr	Asn
		195					200					205			
His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr	Thr	Thr	Val	Thr	Gly	Leu	Arg
	210					215					220				
Leu	Arg	Asn	Thr	Thr	Thr	Gly	Glu	Glu	Thr	Thr	Leu	Val	Val	Thr	Gly
	225				230					235					240
Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Ser	Leu	Val	Ser	Asp
			245						250					255	
Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Lys	Gly	Arg	Thr
		260					265						270		
Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp
	275					280						285			
Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala
	290					295					300				
Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala
	305				310					315					320
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr
			325						330					335	
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile
			340					345					350		
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys
		355					360					365			
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met
	370					375					380				
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu
	385				390					395					400
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu
			405						410					415	
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln
			420				425						430		
Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg
		435				440						445			
Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn						
	450					455									

<210> 128
 <211> 102
 <212> PRT
 <213> Mycoplasma pneumoniae

Met	Val	Thr	Glu	Ile	Lys	Ser	Leu	Lys	Gln	Leu	Gly	Glu	Leu	Phe	Ala
	1			5					10					15	
Ser	Asn	Asn	Lys	Val	Ile	Ile	Asp	Phe	Trp	Ala	Glu	Trp	Cys	Gly	Pro
			20					25					30		
Cys	Lys	Ile	Thr	Gly	Pro	Glu	Phe	Ala	Lys	Ala	Ala	Ser	Glu	Val	Ser
		35					40					45			
Thr	Val	Ala	Phe	Ala	Lys	Val	Asn	Val	Asp	Glu	Gln	Thr	Asp	Ile	Ala
		50				55					60				
Ala	Ala	Tyr	Lys	Ile	Thr	Ser	Leu	Pro	Thr	Ile	Val	Leu	Phe	Glu	Lys
	65				70					75					80
Gly	Gln	Glu	Lys	His	Arg	Ala	Ile	Gly	Phe	Met	Pro	Lys	Ala	Lys	Ile
				85					90					95	
Val	Gln	Leu	Val	Ser	Gln										
			100												

<210> 129
 <211> 112
 <212> PRT
 <213> Mycobacterium smegmatis

Met	Ser	Glu	Asp	Ser	Ala	Thr	Val	Ala	Val	Thr	Asp	Asp	Ser	Phe	Ser
	1			5					10					15	
Thr	Asp	Val	Leu	Gly	Ser	Ser	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala

Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met	Val	Ala	Pro	Val	Leu	Glu	Glu	Ile
		35					40					45			
Ala	Ala	Glu	Lys	Gly	Asp	Gln	Leu	Thr	Val	Ala	Lys	Ile	Asp	Val	Asp
	50					55					60				
Val	Asp	Ala	Asn	Pro	Ala	Thr	Ala	Arg	Asp	Phe	Gln	Val	Val	Ser	Ile
65					70					75					80
Pro	Thr	Met	Ile	Leu	Phe	Lys	Asp	Gly	Ala	Pro	Val	Lys	Arg	Ile	Val
				85					90					95	
Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg	Glu	Leu	Ser	Asp	Ala	Leu
			100					105					110		

<210> 130
 <211> 115
 <212> PRT
 <213> Mycobacterium tuberculosis

Thr	Asp	Ser	Glu	Lys	Ser	Ala	Thr	Ile	Lys	Val	Thr	Asp	Ala	Ser	Phe
1				5					10					15	
Ala	Thr	Asp	Val	Leu	Ser	Ser	Asn	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp
			20					25					30		
Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met	Val	Ala	Pro	Val	Leu	Glu	Glu
		35					40					45			
Ile	Ala	Thr	Glu	Arg	Ala	Thr	Asp	Leu	Thr	Val	Ala	Lys	Leu	Asp	Val
	50					55					60				
Asp	Thr	Asn	Pro	Glu	Thr	Ala	Arg	Asn	Phe	Gln	Val	Val	Ser	Ile	Pro
65					70				75					80	
Thr	Leu	Ile	Leu	Phe	Lys	Asp	Gly	Gln	Pro	Val	Lys	Arg	Ile	Val	Gly
				85				90					95		
Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg	Glu	Leu	Ser	Asp	Val	Val	Pro
			100					105					110		
Asn	Leu	Asn													
		115													

<210> 131
 <211> 127
 <212> PRT
 <213> Neurospora crassa

Met	Ser	Asp	Gly	Val	Lys	His	Ile	Asn	Ser	Ala	Gln	Glu	Phe	Ala	Asn
1				5					10					15	
Leu	Leu	Asn	Thr	Gln	Tyr	Val	Val	Val	Ala	Asp	Phe	Tyr	Ala	Asp	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Lys	Ala	Ile	Ala	Pro	Met	Tyr	Ala	Gln	Phe	Ala	Lys
		35					40					45			
Thr	Phe	Ser	Ile	Pro	Asn	Phe	Leu	Ala	Phe	Ala	Lys	Ile	Asn	Val	Asp
	50					55					60				
Ser	Val	Gln	Gln	Val	Ala	Gln	His	Tyr	Arg	Val	Ser	Ala	Met	Pro	Thr
65					70				75					80	
Phe	Leu	Phe	Phe	Lys	Asn	Gly	Lys	Gln	Val	Ala	Val	Asn	Gly	Ser	Val
				85				90					95		
Met	Ile	Gln	Gly	Ala	Asp	Val	Asn	Ser	Leu	Arg	Ala	Ala	Ala	Glu	Lys
			100					105					110		
Met	Gly	Arg	Leu	Ala	Lys	Glu	Lys	Ala	Ala	Ala	Ala	Gly	Ser	Ser	
			115				120					125			

<210> 132
 <211> 106
 <212> PRT
 <213> Penicillium chrysogenum

<400> 132

Met	Gly	Val	Thr	Pro	Ile	Lys	Ser	Val	Ala	Glu	Tyr	Lys	Glu	Lys	Val
1				5					10					15	
Thr	Asp	Ala	Thr	Gly	Pro	Val	Val	Val	Asp	Phe	His	Ala	Thr	Trp	Cys
			20					25					30		
Gly	Pro	Cys	Lys	Ala	Ile	Ala	Pro	Ala	Leu	Glu	Lys	Leu	Ser	Glu	Thr
		35					40					45			
His	Thr	Gly	Ile	Gln	Phe	Tyr	Lys	Val	Asp	Val	Asp	Glu	Leu	Ser	Glu
	50					55					60				
Val	Ala	Ala	Ser	Asn	Gly	Val	Ser	Ala	Met	Pro	Thr	Phe	His	Phe	Tyr
65					70					75					80
Lys	Gly	Gly	Glu	Arg	Asn	Glu	Glu	Val	Lys	Gly	Ala	Asn	Pro	Ala	Ala
				85					90					95	
Ile	Gln	Ala	Gly	Val	Lys	Ala	Ile	Leu	Glu						
			100					105							

<210> 133
 <211> 108
 <212> PRT
 <213> Pseudomonas aeruginosa

Met	Ser	Glu	His	Ile	Val	Asn	Val	Thr	Asp	Ala	Ser	Phe	Glu	Gln	Asp
1				5					10					15	
Val	Leu	Lys	Ala	Asp	Gly	Pro	Val	Leu	Val	Asp	Tyr	Trp	Ala	Glu	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Val	Leu	Asp	Glu	Val	Ala	Arg
		35					40					45			
Asp	Tyr	Gln	Gly	Lys	Leu	Lys	Val	Cys	Lys	Leu	Asn	Ile	Asp	Glu	Asn
	50					55					60				
Gln	Asp	Thr	Pro	Pro	Lys	Tyr	Gly	Val	Arg	Gly	Ile	Pro	Thr	Leu	Met
65					70					75					80
Leu	Phe	Lys	Asp	Gly	Asn	Val	Glu	Ala	Thr	Lys	Val	Gly	Ala	Leu	Ser
				85				90						95	
Lys	Ser	Gln	Leu	Ala	Ala	Phe	Leu	Asp	Ala	Asn	Ile				
			100					105							

<210> 134
 <211> 104
 <212> PRT
 <213> Rhodospirillum rubrum

<220>
 <221> VARIANT
 <222> 21, 35
 <223> Xaa = Any Amino Acid

Met	Lys	Gln	Val	Ser	Asp	Ala	Ser	Phe	Glu	Glu	Asp	Val	Leu	Lys	Ala
1				5					10					15	
Asp	Gly	Pro	Asn	Xaa	Val	Asp	Phe	Trp	Ala	Glu	Trp	Cys	Gly	Pro	Cys
			20					25					30		
Arg	Gln	Xaa	Ala	Pro	Ala	Leu	Glu	Glu	Leu	Ala	Thr	Ala	Leu	Gly	Asp
		35					40					45			
Lys	Val	Thr	Val	Ala	Lys	Ile	Asn	Ile	Asp	Glu	Asn	Pro	Gln	Thr	Pro
	50					55					60				
Ser	Lys	Tyr	Gly	Val	Arg	Gly	Ile	Pro	Thr	Leu	Met	Ile	Phe	Lys	Asp
65					70					75					80
Gly	Gln	Val	Ala	Ala	Thr	Lys	Ile	Gly	Ala	Leu	Pro	Lys	Thr	Lys	Leu
				85				90						95	
Phe	Glu	Trp	Val	Glu	Ala	Ser	Val								
			100												

<210> 135
 <211> 105

<212> PRT
 <213> Rhodobacter sphaeroides

<400> 135
 Ser Thr Val Pro Val Thr Asp Ala Thr Phe Asp Thr Glu Val Arg Lys
 1 5 10 15
 Ser Asp Val Pro Val Val Val Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Arg Gln Ile Gly Pro Ala Leu Glu Glu Leu Ser Lys Glu Tyr Ala
 35 40 45
 Gly Lys Val Lys Ile Val Lys Val Asn Val Asp Glu Asn Pro Glu Ser
 50 55 60
 Pro Ala Met Leu Gly Val Arg Gly Ile Pro Ala Leu Phe Leu Phe Lys
 65 70 75 80
 Asn Gly Gln Val Val Ser Asn Lys Val Gly Ala Ala Pro Lys Ala Ala
 85 90 95
 Leu Ala Thr Trp Ile Ala Ser Ala Leu
 100 105

<210> 136
 <211> 130
 <212> PRT
 <213> Rickettsia prowazekii

<400> 136
 Met Ser Cys Tyr Asn Glu Ile Thr Thr Leu Leu Glu Phe Asp Ser Asn
 1 5 10 15
 Asp Ile Asn Thr Thr Gln Arg Ile Asn Met Val Asn Asn Val Thr Asp
 20 25 30
 Ser Ser Phe Lys Asn Glu Val Leu Glu Ser Asp Leu Pro Val Met Val
 35 40 45
 Asp Phe Trp Ala Glu Trp Cys Gly Pro Cys Lys Met Leu Ile Pro Ile
 50 55 60
 Ile Asp Glu Ile Ser Lys Glu Leu Gln Asp Lys Val Lys Val Leu Lys
 65 70 75 80
 Met Asn Ile Asp Glu Asn Pro Lys Thr Pro Ser Glu Tyr Gly Ile Arg
 85 90 95
 Ser Ile Pro Thr Ile Met Leu Phe Lys Asn Gly Glu Gln Lys Asp Thr
 100 105 110
 Lys Ile Gly Leu Gln Gln Lys Asn Ser Leu Leu Asp Trp Ile Asn Lys
 115 120 125
 Ser Ile
 130

<210> 137
 <211> 106
 <212> PRT
 <213> Streptomyces aureofaciens

<400> 137
 Gly Ala Thr Val Lys Val Thr Asn Ala Thr Phe Lys Ser Asp Val Leu
 1 5 10 15
 Glu Ser Asp Lys Pro Val Leu Val His Phe Glu Gly Pro Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Val Ala Pro Val Leu Asp Glu Ile Ala Asn Glu Tyr
 35 40 45
 Glu Gly Lys Val Lys Val Ala Lys Val Asn Thr Asp Glu Asn Pro Gln
 50 55 60
 Leu Ala Ser Gln Tyr Gly Val Arg Ser Ile Pro Thr Arg Leu Met Phe
 65 70 75 80
 Lys Gly Gly Glu Val Ala Ala Asn Met Val Gly Ala Ala Pro Lys Thr
 85 90 95
 Arg Leu Ala Ala Phe Leu Asp Ala Ser Leu
 100 105

<210> 138
 <211> 110
 <212> PRT
 <213> Streptomyces coelicolor

<400> 138
 Met Ala Gly Thr Leu Lys His Val Thr Asp Asp Ser Phe Glu Gln Asp
 1 5 10 15
 Val Leu Lys Asn Asp Lys Pro Val Leu Val Asp Phe Trp Ala Ala Trp
 20 25 30
 Cys Gly Pro Cys Arg Gln Ile Ala Pro Ser Leu Glu Ala Ile Ala Ala
 35 40 45
 Glu Tyr Gly Asp Lys Ile Glu Ile Val Lys Leu Asn Ile Asp Glu Asn
 50 55 60
 Pro Gly Thr Ala Ala Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Asn
 65 70 75 80
 Val Tyr Gln Gly Gly Glu Val Ala Lys Thr Ile Val Gly Ala Lys Pro
 85 90 95
 Lys Ala Ala Ile Val Arg Asp Leu Glu Asp Phe Ile Ala Asp
 100 105 110

<210> 139
 <211> 107
 <212> PRT
 <213> Streptomyces clavuligerus

<400> 139
 Met Ala Gly Val Leu Lys Asn Val Thr Asp Asp Thr Phe Glu Ala Asp
 1 5 10 15
 Val Leu Lys Ser Glu Lys Pro Val Leu Val Asp Phe Trp Ala Glu Trp
 20 25 30
 Cys Gly Pro Cys Arg Gln Ile Ala Pro Ser Leu Glu Ala Ile Thr Glu
 35 40 45
 His Gly Gly Gln Ile Glu Ile Val Lys Leu Asn Ile Asp Gln Asn Pro
 50 55 60
 Ala Thr Ala Ala Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Asn Val
 65 70 75 80
 Tyr Gln Gly Gly Glu Val Val Lys Thr Ile Val Gly Ala Lys Pro Lys
 85 90 95
 Ala Ala Leu Leu Arg Pro Gly Pro Val Pro Arg
 100 105

<210> 140
 <211> 106
 <212> PRT
 <213> Synechocystis

<400> 140
 Ser Ala Thr Pro Gln Val Ser Asp Ala Ser Phe Lys Glu Asp Val Leu
 1 5 10 15
 Asp Ser Glu Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Val Ala Pro Val Asp Glu Ile Ser Gln Gln Tyr
 35 40 45
 Glu Gly Lys Val Lys Val Val Lys Leu Asn Thr Asp Glu Asn Pro Asn
 50 55 60
 Thr Ala Ser Gln Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
 65 70 75 80
 Lys Gly Gly Gln Arg Val Asp Met Val Val Gly Ala Val Pro Lys Thr
 85 90 95
 Thr Leu Ala Ser Thr Leu Glu Lys Tyr Leu
 100 105

<210> 141

<211> 109
 <212> PRT
 <213> Synechocystis

<400> 141
 Met Ser Leu Leu Glu Ile Thr Asp Ala Glu Phe Glu Gln Glu Thr Gln
 1 5 10 15
 Gly Gln Thr Lys Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys Gly
 20 25 30
 Pro Cys Arg Leu Met Ala Pro Ala Ile Gln Ala Ile Ala Lys Asp Tyr
 35 40 45
 Gly Asp Lys Leu Lys Val Leu Lys Leu Glu Val Asp Pro Asn Pro Ala
 50 55 60
 Ala Val Ala Gln Cys Lys Val Glu Gly Val Pro Ala Leu Arg Leu Phe
 65 70 75 80
 Lys Asn Asn Glu Leu Val Met Thr His Glu Gly Ala Ile Ala Lys Pro
 85 90 95
 Lys Leu Leu Glu Leu Leu Lys Glu Glu Leu Asp Phe Ile
 100 105

<210> 142
 <211> 108
 <212> PRT
 <213> Thiobacillus ferrooxidans

<400> 142
 Met Ser Asp Ala Ile Leu Tyr Val Ser Asp Asp Ser Phe Glu Thr Asp
 1 5 10 15
 Val Leu Lys Ser Ser Lys Pro Val Leu Val Asp Phe Trp Ala Glu Trp
 20 25 30
 Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Glu Glu Ile Ala Asp
 35 40 45
 Glu Tyr Ala Asp Arg Leu Arg Val Ala Lys Phe Asn Ile Asp Glu Asn
 50 55 60
 Pro Asn Thr Pro Pro Gln Tyr Ala Ile Arg Gly Ile Pro Thr Leu Leu
 65 70 75 80
 Leu Phe Lys Ala Gly Lys Leu Glu Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 Lys Ala Gln Leu Thr Ala Phe Leu Asp Ser Gln Leu
 100 105

<210> 143
 <211> 91
 <212> PRT
 <213> Thiocapsa roseopersicina

<400> 143
 Met Ser Asp Ser Ile Val His Val Thr Asp Asp Ser Phe Glu Asp Glu
 1 5 10 15
 Val Leu Lys Ser Leu Glu Pro Val Leu Val Asp Tyr Trp Ala Asp Trp
 20 25 30
 Cys Gly Pro Cys Lys Met Ile Ala Pro Val Leu Asp Glu Ile Ala Gly
 35 40 45
 Glu Tyr Ala Gly Arg Ile Lys Val Ala Lys Leu Asn Ile Asp Glu Asn
 50 55 60
 Pro Asn Thr Pro Arg Arg Tyr Gly Ile Arg Gly Ile Pro Thr Leu Met
 65 70 75 80
 Leu Ser Arg Gln Ser Glu Val Glu Ala Thr Lys
 85 90

<210> 144
 <211> 44
 <212> PRT
 <213> Tissierella creatinophila

<400> 144
 Met Ile Glu Leu Asp Lys Ser Asn Phe Glu Glu Glu Val Leu Lys Ala
 1 5 10 15
 Glu Gly Thr Val Leu Val Asp Phe Trp Ser Pro Ser Cys Glu Pro Cys
 20 25 30
 Lys Ala Leu Met Pro His Val His Asp Phe Glu Glu
 35 40

<210> 145
 <211> 105
 <212> PRT
 <213> Treponema pallidum

<400> 145
 Met Ala Leu Leu Asp Ile Ser Ser Gly Asn Val Arg Lys Thr Ile Glu
 1 5 10 15
 Thr Asn Pro Leu Val Ile Val Asp Phe Trp Ala Pro Trp Cys Gly Ser
 20 25 30
 Cys Lys Met Leu Gly Pro Val Leu Glu Glu Val Glu Ser Glu Val Gly
 35 40 45
 Ser Gly Val Val Ile Gly Lys Leu Asn Val Asp Asp Asp Gln Asp Leu
 50 55 60
 Ala Val Glu Phe Asn Val Ala Ser Ile Pro Thr Leu Ile Val Phe Lys
 65 70 75 80
 Asp Gly Lys Glu Val Asp Arg Ser Ile Gly Phe Val Asp Lys Ser Lys
 85 90 95
 Ile Leu Thr Leu Ile Gln Lys Asn Ala
 100 105

<210> 146
 <211> 104
 <212> PRT
 <213> Bos taurus

<400> 146
 Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
 1 5 10 15
 Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
 35 40 45
 Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
 50 55 60
 Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Asn Glu Leu Ile
 100

<210> 147
 <211> 166
 <212> PRT
 <213> Bos taurus

<400> 147
 Met Ala Gln Arg Leu Leu Arg Arg Phe Leu Thr Ser Ile Ile Ser
 1 5 10 15
 Gly Lys Pro Ser Gln Ser Arg Trp Ala Pro Val Ala Ser Arg Ala Leu
 20 25 30
 Lys Thr Pro Gln Tyr Ser Pro Gly Tyr Leu Thr Val Thr Pro Ser Gln
 35 40 45
 Ala Arg Ser Ile Tyr Thr Thr Arg Val Cys Ser Thr Thr Phe Asn Ile
 50 55 60

Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
65 70 75 80
Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
85 90 95
Gly Pro Arg Leu Glu Lys Val Val Ala Lys Gln His Gly Lys Val Val
100 105 110
Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Leu Glu Tyr
115 120 125
Glu Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val
130 135 140
Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
145 150 155 160
Leu Lys Lys Leu Ile Gly
165

<210> 148
<211> 115
<212> PRT
<213> Caenorhabditis elegans

<400> 148
Met Leu Lys Arg Cys Asn Phe Lys Asn Gln Val Lys Tyr Phe Gln Ser
1 5 10 15
Asp Phe Glu Gln Leu Ile Arg Gln His Pro Glu Lys Ile Ile Ile Leu
20 25 30
Asp Phe Tyr Ala Thr Trp Cys Gly Pro Cys Lys Ala Ile Ala Pro Leu
35 40 45
Tyr Lys Glu Leu Ala Thr Thr His Lys Gly Ile Ile Phe Cys Lys Val
50 55 60
Asp Val Asp Glu Ala Glu Asp Leu Cys Ser Lys Tyr Asp Val Lys Met
65 70 75 80
Met Pro Thr Phe Ile Phe Thr Lys Asn Gly Asp Ala Ile Glu Ala Leu
85 90 95
Glu Gly Cys Val Glu Asp Glu Leu Arg Gln Lys Val Leu Glu His Val
100 105 110
Ser Ala Gln
115

<210> 149
<211> 20
<212> PRT
<213> Canis familiaris

<400> 149
Val Lys Gln Ile Glu Phe Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
1 5 10 15
Ala Gly Asp Lys
20

<210> 150
<211> 104
<212> PRT
<213> Gallus gallus

<400> 150
Val Lys Ser Val Gly Asn Leu Ala Asp Phe Glu Ala Glu Leu Lys Ala
1 5 10 15
Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Phe
35 40 45
Gly Asp Val Val Phe Ile Glu Ile Asp Val Asp Asp Ala Gln Asp Val
50 55 60
Ala Thr His Cys Asp Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys

[illegible][illegible]
$$\frac{\partial \mathcal{L}}{\partial \mathbf{W}} = \frac{\partial \mathcal{L}}{\partial \mathbf{Y}} \mathbf{W}^T + \frac{\partial \mathcal{L}}{\partial \mathbf{X}} \mathbf{X}^T$$

Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
85 90 95
Gly Pro Arg Leu Glu Lys Met Val Ala Lys Gln His Gly Lys Val Val
100 105 110
Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr
115 120 125
Glu Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val
130 135 140
Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
145 150 155 160
Leu Lys Lys Leu Ile Gly
165

<210> 154
<211> 104
<212> PRT
<213> Macaca mulatta

<400> 154
Val Lys Gln Ile Glu Ser Lys Ala Ala Phe Gln Glu Ala Leu Asp Asp
1 5 10 15
Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
50 55 60
Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Thr Ile Asn Glu Leu Val
100

<210> 155
<211> 104
<212> PRT
<213> Mus musculus

<400> 155
Val Lys Leu Ile Glu Ser Lys Glu Ala Phe Gln Glu Ala Leu Ala Ala
1 5 10 15
Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
20 25 30
Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Tyr
35 40 45
Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
50 55 60
Ala Ala Asp Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
65 70 75 80
Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
85 90 95
Glu Ala Ser Ile Thr Glu Tyr Ala
100

<210> 156
<211> 166
<212> PRT
<213> Mus musculus

<400> 156
Met Ala Gln Arg Leu Leu Leu Gly Arg Phe Leu Thr Ser Val Ile Ser
1 5 10 15
Arg Lys Pro Pro Gln Gly Val Trp Ala Ser Leu Thr Ser Lys Thr Leu

Gln	Thr	Pro	20	Gln	Tyr	Asn	Ala	Gly	25	Gly	Leu	Thr	Val	Met	30	Pro	Ser	Pro
Ala	Arg	35	Thr	Val	His	Thr	Thr	Arg	40	Val	Cys	Leu	Thr	45	Thr	Phe	Asn	Val
Gln	Asp	50	Gly	Pro	Asp	Phe	Gln	Asp	55	Arg	Val	Val	Asn	60	Ser	Glu	Thr	Pro
65	Val	Val	Val	Asp	85	Phe	His	Ala	70	Gln	Trp	Cys	Gly	75	Pro	Cys	Lys	Ile
Val	Val	Val	Asp	85	Phe	His	Ala	Gln	90	Trp	Cys	Gly	Pro	Cys	Lys	Ile	Leu	95
Gly	Pro	Arg	Leu	100	Glu	Lys	Met	Val	105	Ala	Lys	Gln	His	Gly	Lys	Val	Val	110
Met	Ala	Lys	Val	115	Asp	Ile	Asp	Asp	120	His	Thr	Asp	Leu	125	Ala	Ile	Glu	Tyr
Glu	Val	Ser	Ala	Val	Pro	Thr	Val	Leu	135	Ala	Ile	Lys	Asn	140	Gly	Asp	Val	145
Val	Asp	Lys	Phe	Val	Gly	Ile	Lys	Asp	150	Glu	Asp	Gln	Leu	155	Glu	Ala	Phe	160
Leu	Lys	Lys	Leu	Ile	Gly													

<210> 157
 <211> 33
 <212> PRT
 <213> Sus scrofa

<400> 157
 Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
 1 5 10 15
 Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro

<210> 158
 <211> 104
 <212> PRT
 <213> Oryctolagus cuniculus

<400> 158
 Val Lys Gln Ile Glu Ser Lys Ser Ala Phe Gln Glu Val Leu Asp Ser
 1 5 10 15
 Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ala Leu Ser Glu Lys Phe
 35 40 45
 Asn Asn Val Val Phe Ile Glu Val Asp Val Asp Asp Cys Lys Asp Ile
 50 55 60
 Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Asn Glu Leu Leu
 100

<210> 159
 <211> 104
 <212> PRT
 <213> Rattus norvegicus

<400> 159
 Val Lys Leu Ile Glu Ser Lys Glu Ala Phe Gln Glu Ala Leu Ala Ala
 1 5 10 15
 Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30

Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Tyr
 35 40 45
 Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
 50 55 60
 Ala Ala Asp Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Thr Glu Phe Ala
 100

<210> 160
 <211> 166
 <212> PRT
 <213> Rattus norvegicus

<400> 160
 Met Ala Gln Arg Leu Leu Arg Arg Phe Leu Thr Ser Val Ile Ser
 1 5 10 15
 Arg Lys Pro Pro Gln Gly Val Trp Ala Ser Leu Thr Ser Thr Ser Leu
 20 25 30
 Gln Thr Pro Pro Tyr Asn Ala Gly Leu Thr Gly Thr Pro Ser Pro
 35 40 45
 Ala Arg Thr Phe His Thr Thr Arg Val Cys Ser Thr Thr Phe Asn Val
 50 55 60
 Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
 65 70 75 80
 Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
 85 90 95
 Gly Pro Arg Leu Glu Lys Met Val Ala Lys Gln His Gly Lys Val Val
 100 105 110
 Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr
 115 120 125
 Glu Val Ser Ala Val Pro Thr Val Leu Ala Ile Lys Asn Gly Asp Val
 130 135 140
 Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
 145 150 155 160
 Leu Lys Lys Leu Ile Gly
 165

<210> 161
 <211> 104
 <212> PRT
 <213> Ovis aries

<400> 161
 Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
 1 5 10 15
 Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
 35 40 45
 Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
 50 55 60
 Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
 65 70 75 80
 Lys Gly Gln Lys Val Ser Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Asn Glu Leu Ile
 100

<210> 162
 <211> 261
 <212> PRT

<213> Arabidopsis thaliana

<400> 162

Met Ala Arg Leu Val Phe Ser Leu Asn Leu Pro Ser Ser His Gly Phe
1 5 10 15
Asn Leu Ser Pro Arg Asn Leu Gln Ser Phe Phe Val Thr Gln Thr Gly
20 25 30
Ala Pro Arg Phe Arg Ala Val Arg Cys Lys Pro Asn Pro Glu Ser Ser
35 40 45
Glu Thr Lys Gln Glu Lys Leu Val Ile Asp Asn Gly Glu Thr Ser Ser
50 55 60
Ala Ser Lys Glu Val Glu Ser Ser Ser Ser Val Ala Asp Ser Ser Ser
65 70 75 80
Ser Ser Ser Ser Gly Phe Pro Glu Ser Pro Asn Lys Asp Ile Asn Arg
85 90 95
Arg Val Ala Ala Val Thr Val Ile Ala Ala Leu Ser Leu Phe Val Ser
100 105 110
Thr Arg Leu Asp Phe Gly Ile Ser Leu Lys Asp Leu Thr Ala Ser Ala
115 120 125
Leu Pro Tyr Glu Glu Ala Leu Ser Asn Gly Lys Pro Thr Val Val Glu
130 135 140
Phe Tyr Ala Asp Trp Cys Glu Val Cys Arg Glu Leu Ala Pro Asp Val
145 150 155 160
Tyr Lys Ile Glu Gln Tyr Lys Asp Lys Val Asn Phe Val Met Leu
165 170 175
Asn Val Asp Asn Thr Lys Trp Glu Gln Glu Leu Asp Glu Phe Gly Val
180 185 190
Glu Gly Ile Pro His Phe Ala Phe Leu Asp Arg Glu Gly Asn Glu Glu
195 200 205
Gly Asn Val Val Gly Arg Leu Pro Arg Gln Tyr Leu Val Glu Asn Val
210 215 220
Asn Ala Leu Ala Ala Gly Lys Gln Ser Ile Pro Tyr Ala Arg Ala Val
225 230 235 240
Gly Gln Tyr Ser Ser Ser Glu Ser Arg Lys Val His Gln Val Thr Asp
245 250 255
Pro Leu Ser His Gly
260

<210> 163

<211> 140

<212> PRT

<213> Arabidopsis thaliana

<400> 163

Met Gly Ser Cys Val Ser Lys Gly Lys Gly Asp Asp Asp Ser Val His
1 5 10 15
Asn Val Glu Phe Ser Gly Gly Asn Val His Leu Ile Thr Thr Lys Glu
20 25 30
Ser Trp Asp Asp Lys Leu Ala Glu Ala Asp Arg Asp Gly Lys Ile Val
35 40 45
Val Ala Asn Phe Ser Ala Thr Trp Cys Gly Pro Cys Lys Ile Val Ala
50 55 60
Pro Phe Phe Ile Glu Leu Ser Glu Lys His Ser Ser Leu Met Phe Leu
65 70 75 80
Leu Val Asp Val Asp Glu Leu Ser Asp Phe Ser Ser Ser Trp Asp Ile
85 90 95
Lys Ala Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Gln Gln Ile Gly
100 105 110
Lys Leu Val Gly Ala Asn Lys Pro Glu Leu Gln Lys Lys Val Thr Ser
115 120 125
Ile Ile Asp Ser Val Pro Glu Ser Pro Gln Arg Pro
130 135 140

<210> 164

<211> 186

<212> PRT
 <213> Arabidopsis thaliana

<400> 164
 Met Ser Glu Ile Val Asn Leu Ser Ser Ser Leu Arg Ser Leu Asn Pro
 1 5 10 15
 Lys Ile Ser Pro Leu Val Pro Pro Tyr Arg Gln Thr Ser Ser Ser Phe
 20 25 30
 Ser Arg Pro Arg Asn Phe Lys Tyr His Ser Phe Thr Asp Lys Ile Cys
 35 40 45
 Leu Ala Ala Glu Arg Ile Arg Ala Val Asp Ile Gln Lys Gln Asp Gly
 50 55 60
 Gly Leu Gln Glu Leu Asp Asp Ser Pro Val Ser Val Glu Leu Gly Pro
 65 70 75 80
 Ile Cys Gly Glu Ser His Phe Asp Gln Val Met Glu Asp Ala Gln Lys
 85 90 95
 Leu Gly Glu Ser Val Val Ile Val Trp Met Ala Ala Trp Cys Arg Lys
 100 105 110
 Cys Ile Tyr Leu Lys Pro Lys Leu Glu Lys Leu Ala Ala Glu Phe Tyr
 115 120 125
 Pro Arg Leu Arg Phe Tyr His Val Asp Val Asn Ala Val Pro Tyr Arg
 130 135 140
 Leu Val Ser Arg Ala Gly Val Thr Leu Trp Arg Asp Gly Gln Lys Gln
 145 150 155 160
 Ala Glu Val Ile Gly Gly His Lys Ala His Phe Val Val Asn Glu Val
 165 170 175
 Arg Glu Met Ile Glu Asn Asp Ser Ile Thr
 180 185

<210> 165
 <211> 207
 <212> PRT
 <213> Arabidopsis thaliana

<400> 165
 Met Glu Asn Met Ser Asn Leu Thr Ser Lys Phe Leu Leu Asn Pro Leu
 1 5 10 15
 Asn Val His Lys His Cys Ala Val Ser Asp Glu Asn Gly Asp Arg Lys
 20 25 30
 Ser His Val Leu Lys Gln Val Cys Ser Cys Ile Cys Cys Asn Arg
 35 40 45
 Arg Asn Lys Thr Gln Ala Arg Ser Gln Lys Gly Ser Tyr Phe Ile Lys
 50 55 60
 Gly Lys Val His Pro Val Ser Arg Met Glu Lys Trp Glu Glu Lys Ile
 65 70 75 80
 Thr Glu Ala Asn Ser His Gly Lys Ile Ile Ala Arg His Asp Leu Ile
 85 90 95
 Leu Cys Asn Met Glu Gln Leu Val Val Asn Phe Lys Ala Ser Trp Cys
 100 105 110
 Leu Pro Ser Lys Thr Ile Leu Pro Ile Tyr Gln Glu Leu Ala Ser Thr
 115 120 125
 Tyr Thr Ser Met Ile Phe Val Thr Ile Asp Val Glu Glu Leu Ala Ile
 130 135 140
 Ser Lys Leu Ser Asp Leu Gly Val Lys Ile Cys Leu Ile Gln Glu Phe
 145 150 155 160
 Ser His Glu Trp Asn Val Asp Ala Thr Pro Thr Val Val Phe Leu Lys
 165 170 175
 Asp Gly Arg Gln Met Asp Lys Leu Val Gly Gly Asp Ala Ala Glu Leu
 180 185 190
 Gln Lys Lys Thr Ala Ala Ala Ala Asn Leu Leu Leu Arg Gln Ser
 195 200 205

<210> 166
 <211> 175
 <212> PRT

<213> Arabidopsis thaliana

<400> 166

Met Leu Ile Pro His Ala Val Ser Phe Ala Phe Thr Tyr Leu Arg Asn
1 5 10 15
Ser Ala Asn Pro Asp Gln Asn Arg Glu Val Ile Ser Ile His Ser Thr
20 25 30
Ser Glu Leu Glu Ala Lys Thr Lys Ala Ala Lys Lys Ala Ser Arg Leu
35 40 45
Leu Ile Leu Tyr Phe Thr Ala Thr Trp Cys Gly Pro Cys Arg Tyr Met
50 55 60
Ser Pro Leu Tyr Ser Asn Leu Ala Thr Gln His Ser Arg Val Val Phe
65 70 75 80
Leu Lys Val Asp Ile Asp Lys Ala Asn Asp Val Ala Ala Ser Trp Asn
85 90 95
Ile Ser Ser Val Pro Thr Phe Cys Phe Ile Arg Asp Gly Lys Glu Val
100 105 110
Asp Lys Val Val Gly Ala Asp Lys Gly Ser Leu Glu Gln Lys Ile Ala
115 120 125
Gln His Ser Ser Ser Lys Ala Arg Tyr Ile Pro Val Phe Ile Lys Tyr
130 135 140
His Ser Asp Leu Leu Leu Leu Val Asn Glu Glu Thr Pro Thr Ser Asn
145 150 155 160
Gln Lys Leu Lys Thr Lys Thr Gly Asp Trp Phe His Ile Asn Leu
165 170 175

<210> 167

<211> 132

<212> PRT

<213> Arabidopsis thaliana

<400> 167

Met Arg Lys Gln Glu Ser Glu Gly Ala Asn Leu Glu Phe Glu Ser Lys
1 5 10 15
Ser Asn Asp Asn Gly Asn Val Lys Ile Ala Pro Asn Asp Gln Ser Phe
20 25 30
Leu Thr Ile Leu Asp Asp Ile Lys Ser Ser Lys Ser Pro Ala Val Ile
35 40 45
Asn Tyr Gly Ala Ser Trp Tyr Thr Leu Phe Ser Val Phe Thr Ile Thr
50 55 60
Leu Phe Met Leu Ile Lys Cys Ser Met Lys Cys Leu Asn Glu Asn Gly
65 70 75 80
Phe Val Leu Lys Leu Ser Asp Ile Asp Glu Cys Pro Glu Thr Thr Arg
85 90 95
His Ile Arg Tyr Thr Pro Thr Phe Gln Phe Tyr Arg Asp Gly Glu Lys
100 105 110
Val Asp Glu Met Phe Gly Ala Gly Glu Gln Arg Leu His Asp Arg Leu
115 120 125
Trp Leu His Ser
130

<210> 168

<211> 151

<212> PRT

<213> Arabidopsis thaliana

<400> 168

Met Ala Ser Ile Ser Leu Ser Ser Ser Thr Val Pro Ser Leu Asn Ser
1 5 10 15
Lys Glu Ser Ser Gly Val Ser Ala Phe Ala Ser Arg Ser Ile Ser Ala
20 25 30
Val Lys Phe Gln Phe Pro Val Arg Arg Ile Glu Ala Lys Lys Gln Thr
35 40 45
Phe Asp Ser Phe Glu Asp Leu Leu Val Asn Ser Asp Lys Pro Val Leu
50 55 60

Val Asp Tyr Tyr Ala Thr Trp Cys Gly Pro Cys Gln Phe Met Val Pro
65 70 75 80
Ile Leu Asn Glu Val Ser Glu Thr Leu Lys Asp Lys Ile Gln Val Val
85 90 95
Lys Ile Asp Thr Glu Lys Tyr Pro Ser Ile Ala Asn Lys Tyr Lys Ile
100 105 110
Glu Ala Leu Pro Thr Phe Ile Leu Phe Lys Asp Gly Glu Pro Cys Asp
115 120 125
Arg Phe Glu Gly Ala Leu Thr Ala Lys Gln Leu Ile Gln Arg Ile Glu
130 135 140
Asp Ser Leu Lys Val Lys Pro
145 150

<210> 169
<211> 236
<212> PRT
<213> Arabidopsis thaliana

<400> 169
Met Ala Gly Val Val Arg Leu Thr Thr Thr Ser Val Gln Ala Ile Arg
1 5 10 15
Val Ser Ser Ser Phe Ser Ser Phe Ala Thr Ala Leu Asn Pro Leu Gln
20 25 30
Pro Cys Leu Pro Pro Asn Ser Asn Leu Asn Ser Asp Lys Arg Leu Arg
35 40 45
Leu Leu Ser Ser Ser Pro Ser Cys Ser Ser Ser His Tyr His Pro Ser
50 55 60
Ser Gly Leu Gly Ser His Leu Pro Leu Arg Arg Pro Lys Ser Gln Val
65 70 75 80
Val Arg Val Lys Val Asp Glu Asn Val Ala Glu Thr Glu Pro Pro Lys
85 90 95
Trp Trp Glu Arg Asn Ala Pro Asn Met Val Asp Ile His Ser Thr Glu
100 105 110
Glu Phe Leu Ser Ala Leu Ser Gly Ala Gly Glu Arg Leu Val Ile Val
115 120 125
Glu Phe Tyr Gly Thr Trp Cys Ala Ser Cys Arg Ala Leu Phe Pro Lys
130 135 140
Leu Cys Lys Thr Ala Val Glu His Pro Asp Ile Val Phe Leu Lys Val
145 150 155 160
Asn Phe Asp Glu Asn Lys Pro Met Cys Lys Ser Leu Asn Val Arg Val
165 170 175
Leu Pro Phe Phe His Phe Tyr Arg Gly Ala Asp Gly Gln Leu Glu Ser
180 185 190
Phe Ser Cys Ser Leu Ala Lys Val Lys Lys Ala Ile Ser Val Ser Pro
195 200 205
Phe Pro Gln Leu Glu Leu Gly Ile Thr Leu Gln Thr Lys Arg Thr Thr
210 215 220
Ser Leu Phe Phe Phe Asp Arg Ile Tyr Gln Ile Leu
225 230 235

<210> 170
<211> 131
<212> PRT
<213> Hordeum bulbosum

<400> 170
Met Gly Gly Cys Val Gly Lys Asp Arg Ser Ile Val Glu Asp Lys Leu
1 5 10 15
Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
20 25 30
Asp Gln Lys Val Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
35 40 45
Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
50 55 60
Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile

65 70 75 80
 Asp Val Asp Asp Leu Met Asp Phe Gly Ser Thr Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Gln Ala Leu Gly
 115 120 125
 Asp Gly Ser
 130

<210> 171
 <211> 131
 <212> PRT
 <213> Lolium perenne

<400> 171
 Met Gly Gly Cys Val Gly Lys Asp Arg Ser Ile Val Glu Asp Lys Leu
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
 20 25 30
 Asp Gln Lys Val Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
 35 40 45
 Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Asp Leu Met Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Gln Leu Ile Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Arg Pro Glu Leu Glu Lys Lys Val Gln Ala Ile Gly
 115 120 125
 Asp Gly Ser
 130

<210> 172
 <211> 131
 <212> PRT
 <213> Oryza sativa

<400> 172
 Met Gly Ser Cys Val Gly Lys Glu Arg Ser Asp Glu Glu Asp Lys Ile
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Ser Asn Lys Glu Asn Trp
 20 25 30
 Asp His Lys Ile Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Ile Ala
 35 40 45
 Asn Phe Ser Ala Ala Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Gln Thr Tyr Pro Gln Phe Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Glu Leu Met Asp Phe Ser Ser Ser Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Glu Gln Val Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Ala Ala Leu Ala
 115 120 125
 Asp Ser Ala
 130

<210> 173
 <211> 296
 <212> PRT
 <213> Solanum tuberosum

<400> 173
Met Ala Thr Leu Thr Asn Phe Leu Leu Lys Pro Ser Pro Asn Leu Ala
1 5 10 15
Ser Ile Thr Lys Ile Ser Pro Ser Leu Tyr Ser Asn Phe Pro Phe Glu
20 25 30
Lys Ser Lys Gln Ser Ile Phe Lys Asn Leu Lys Thr Asn Lys Pro Leu
35 40 45
Leu Ile Thr Lys Ala Thr Ala Ala Pro Asp Val Glu Lys Lys Val Ala
50 55 60
Lys Ser Glu Arg Val Gln Lys Val Asn Ser Met Glu Glu Leu Asp Glu
65 70 75 80
Ala Leu Lys Lys Ala Lys Asn Arg Leu Val Val Val Glu Phe Ala Gly
85 90 95
Lys Asp Ser Glu Arg Ser Lys Asn Ile Tyr Pro Phe Met Val Asn Leu
100 105 110
Ser Lys Thr Cys Asn Asp Val Asp Phe Leu Leu Val Ile Gly Asp Glu
115 120 125
Thr Glu Lys Thr Lys Ala Leu Cys Arg Arg Glu Lys Ile Asp Lys Val
130 135 140
Pro His Phe Asn Phe Tyr Lys Ser Met Glu Lys Ile His Glu Glu Glu
145 150 155 160
Gly Ile Gly Pro Asp Leu Leu Ala Gly Asp Val Leu Tyr Tyr Gly Asp
165 170 175
Ser His Ser Glu Val Val Gln Leu His Ser Arg Glu Asp Val Glu Lys
180 185 190
Val Ile Gln Asp His Lys Ile Asp Lys Lys Leu Ile Val Leu Asp Val
195 200 205
Gly Leu Lys His Cys Gly Pro Cys Val Lys Val Tyr Pro Thr Val Ile
210 215 220
Lys Leu Ser Lys Gln Met Ala Asp Thr Val Val Phe Ala Arg Met Asn
225 230 235 240
Gly Asp Glu Asn Asp Ser Cys Met Gln Phe Leu Lys Asp Met Asp Val
245 250 255
Ile Glu Val Pro Thr Phe Leu Phe Ile Arg Asp Gly Glu Ile Cys Gly
260 265 270
Arg Tyr Val Gly Ser Gly Lys Gly Glu Leu Ile Gly Glu Ile Leu Arg
275 280 285
Tyr Gln Gly Val Arg Val Thr Tyr
290 295

<210> 174
<211> 131
<212> PRT
<213> Secale cereale

<400> 174
Met Gly Gly Cys Val Gly Lys Gly Arg Ser Ile Val Glu Glu Lys Leu
1 5 10 15
Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
20 25 30
Asp Gln Lys Ile Glu Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
35 40 45
Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Val Ala Pro Val
50 55 60
Tyr Ala Gly Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
65 70 75 80
Asp Val Asp Asp Leu Met Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
85 90 95
Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
100 105 110
Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Gln Ala Leu Gly
115 120 125
Asp Gly Ser
130

<210> 175
 <211> 119
 <212> PRT
 <213> Secale cereale

<400> 175
 Met Gly Gly Cys Val Gly Lys Gly Arg Ser Ile Val Glu Glu Lys Leu
 1 5 10 15
 Asp Phe Lys Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
 20 25 30
 Asp Gln Lys Ile Glu Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
 35 40 45
 Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Asp Leu Met Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Lys Pro Glu
 115

<210> 176
 <211> 106
 <212> PRT
 <213> Manduca sexta

<400> 176
 Met Ser Ile His Ile Lys Asp Ala Asp Asp Leu Lys Asn Arg Leu Ala
 1 5 10 15
 Glu Ala Gly Asp Lys Leu Val Val Ile Asp Phe Met Ala Thr Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Ile Gly Pro Lys Leu Asp Glu Met Ala Ala Glu
 35 40 45
 Met Ala Asp Ser Ile Val Val Val Lys Val Asp Val Asp Glu Cys Glu
 50 55 60
 Asp Ile Ala Ala Asp Tyr Asn Ile Asn Ser Met Pro Thr Phe Val Phe
 65 70 75 80
 Val Lys Asn Ser Lys Lys Leu Glu Glu Phe Ser Gly Ala Asn Val Asp
 85 90 95
 Lys Leu Lys Asn Thr Ile Leu Lys Leu Lys
 100 105

<210> 177
 <211> 221
 <212> PRT
 <213> Bradyrhizobium japonicum

<400> 177
 Met Leu Asp Thr Lys Pro Ser Ala Thr Arg Arg Ile Pro Leu Val Ile
 1 5 10 15
 Ala Thr Val Ala Val Gly Gly Leu Ala Gly Phe Ala Ala Leu Tyr Gly
 20 25 30
 Leu Gly Leu Ser Arg Ala Pro Thr Gly Asp Pro Ala Cys Arg Ala Ala
 35 40 45
 Val Ala Thr Ala Gln Lys Ile Ala Pro Leu Ala His Gly Glu Val Ala
 50 55 60
 Ala Leu Thr Met Ala Ser Ala Pro Leu Lys Leu Pro Asp Leu Ala Phe
 65 70 75 80
 Glu Asp Ala Asp Gly Lys Pro Lys Lys Leu Ser Asp Phe Arg Gly Lys
 85 90 95
 Thr Leu Leu Val Asn Leu Trp Ala Thr Trp Cys Val Pro Cys Arg Lys
 100 105 110
 Glu Met Pro Ala Leu Asp Glu Leu Gln Gly Lys Leu Ser Gly Pro Asn

His Ser Gly Arg Leu Pro Ala Leu Pro His Glu Ala Ala Arg Gly Arg
 130 135 140
 Asn Val His His Arg His Pro Ile Ser Ser Ala Leu Arg Leu Tyr Trp
 145 150 155 160
 Ser Ala Val

<210> 180
 <211> 275
 <212> PRT
 <213> Mortierella alpina

<400> 180
 Met Val Ser Asn Asn Tyr Ile Asp Ile Thr Ser Glu Asp Asp Phe Ala
 1 5 10 15
 Gln Val Phe Gln Pro Ser Ser Ser Thr Val Tyr Ala Leu Asn Phe Trp
 20 25 30
 Ala Ala Trp Ala Pro Pro Cys Val Gln Met Asn Glu Val Phe Glu Glu
 35 40 45
 Leu Ala Ala Lys Asn Ala Asn Val Asn Phe Leu Lys Ile Glu Ala Glu
 50 55 60
 Lys Phe Pro Asp Ile Ser Glu Asp Tyr Glu Ile Ala Ala Val Pro Ser
 65 70 75 80
 Phe Val Ile Val Lys Glu Gly Thr Val Val Asp Arg Val Glu Gly Ala
 85 90 95
 Asn Ala Pro Glu Leu Ala Lys Val Ile Ala Lys Tyr Ser Lys Ser Thr
 100 105 110
 Ser Ser Pro Leu Pro Thr Gln Ser Ser Thr Met Ala Ala Ala Gly His
 115 120 125
 Ala Ala Pro Ser Val Ala Pro Pro Thr Met Ser Pro Glu Glu Met Asn
 130 135 140
 Ala Arg Leu Lys Glu Leu Thr Ser Ser Ser Ser Val Met Ala Phe Ile
 145 150 155 160
 Lys Gly Thr Pro Thr Ala Pro Arg Cys Gln Phe Ser Arg Gln Leu Leu
 165 170 175
 Glu Ile Leu Thr Ala Gln Asn Ile Arg Phe Ser Ser Phe Asn Ile Leu
 180 185 190
 Ala Asp Asp Glu Val Arg Gln Ala Met Lys Thr Phe Ser Asp Trp Pro
 195 200 205
 Thr Phe Pro Gln Val Tyr Val Lys Gly Glu Phe Val Gly Gly Leu Asp
 210 215 220
 Val Val Lys Glu Leu Val Ala Ser Gly Glu Phe Gln Ala Leu Val Pro
 225 230 235 240
 Ala Glu Lys Asp Leu Lys Thr Arg Met Asp Glu Leu Ile Arg Lys Ala
 245 250 255
 Pro Val Met Ile Phe Ile Lys Gly Ser Pro Glu Thr Pro Arg Cys Gly
 260 265 270
 Phe Ser Lys
 275

<210> 181
 <211> 160
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 181
 Met Lys Arg Leu Ile Leu Ala Ala Ile Ala Leu Ala Ala Thr Phe Gly
 1 5 10 15
 Ala His Thr Ala Ser Gly Asp Glu Leu Ala Gly Trp Lys Asp Asn Thr
 20 25 30
 Pro Gln Asn Leu Gln Ser Leu Lys Ala Pro Val Arg Ile Ala Asn Leu
 35 40 45
 Trp Ala Thr Trp Cys Gly Pro Cys Arg Lys Glu Met Pro Ala Met Ser
 50 55 60
 Lys Trp Tyr Lys Ala Gln Lys Lys Gly Ser Val Asp Met Val Gly Ile

65					70					75				80
Ala	Leu	Asp	Thr	Ser	Asp	Asn	Ile	Gly	Asn	Phe	Leu	Lys	Gln	Thr
				85					90				95	Pro
Val	Ser	Tyr	Pro	Ile	Trp	Arg	Tyr	Thr	Gly	Ala	Asn	Ser	Arg	Ser
			100					105					110	Phe
Met	Lys	Ser	Tyr	Gly	Asn	Asn	Val	Gly	Val	Leu	Pro	Phe	Thr	Val
		115					120					125		Val
Glu	Ala	Pro	Lys	Cys	Gly	Tyr	Arg	Gln	Thr	Ile	Thr	Gly	Glu	Leu
	130					135					140			Asn
Glu	Lys	Ser	Leu	Thr	Glu	Ala	Val	Lys	Leu	Ala	His	Ser	Lys	Cys
145					150					155				Arg
														160

<210> 182
 <211> 208
 <212> PRT
 <213> Rhizobium loti

<400> 182														
Met	Ala	Gly	Ala	Leu	Ala	Gly	Ala	Val	Ala	Val	Tyr	Val	Ser	Glu
1				5					10					15
Arg	Ser	Gly	Asn	Asn	Ala	Pro	Ala	Arg	Val	Ala	Val	Gly	Gly	Ser
			20					25					30	Lys
Asp	Asp	Val	Ala	Cys	Ala	Ala	Lys	Ser	Gly	Arg	Ala	Lys	Lys	Ile
		35					40					45		Ala
Ala	Ala	Ala	Thr	Gly	Glu	Val	Ala	Ala	Leu	Leu	Pro	Ala	Asp	Pro
		50				55					60			Pro
Gln	Ser	Met	Lys	Ser	Leu	Ala	Phe	Asn	Gly	Pro	Asp	Gly	Lys	Pro
65					70					75				80
Thr	Ile	Ala	Asp	His	Ala	Gly	Lys	Thr	Val	Leu	Leu	Asn	Leu	Trp
				85					90					95
Thr	Trp	Cys	Ala	Pro	Cys	Arg	Ala	Glu	Met	Pro	Ala	Leu	Asn	Ala
		100						105					110	Leu
Gln	Lys	Asp	Lys	Gly	Ser	Asp	Ala	Phe	Gln	Val	Ile	Ala	Val	Asn
		115					120					125		Val
Asp	Ala	Gly	Asp	Asp	Val	Lys	Pro	Lys	Lys	Phe	Leu	Lys	Glu	Thr
	130					135					140			Gly
Val	Glu	Ala	Leu	Gly	Tyr	Phe	Arg	Asp	Ser	Thr	Val	Ala	Leu	Phe
145				150						155				Asn
Asp	Leu	Lys	Ala	Arg	Gly	Leu	Ala	Leu	Gly	Leu	Pro	Val	Thr	Met
			165						170					Leu
Ile	Asp	Ser	Glu	Gly	Cys	Leu	Ile	Ala	His	Met	Asn	Gly	Pro	Ala
			180					185					190	Glu
Trp	Ser	Gly	Arg	Asp	Ala	Arg	Arg	Leu	Val	Glu	Thr	Ala	Leu	Gly
		195				200						205		Ser

<210> 183
 <211> 176
 <212> PRT
 <213> Rhodobacter capsulatus

<400> 183														
Met	Ala	Lys	Pro	Leu	Met	Phe	Leu	Pro	Leu	Leu	Val	Met	Ala	Gly
1				5					10					15
Val	Gly	Ala	Gly	Tyr	Phe	Ala	Met	Gln	Gln	Asn	Asp	Pro	Asn	Ala
			20					25					30	Met
Pro	Thr	Ala	Leu	Ala	Gly	Lys	Glu	Ala	Pro	Ala	Val	Arg	Leu	Glu
		35					40					45		Pro
Leu	Gly	Ala	Glu	Ala	Pro	Phe	Thr	Asp	Ala	Asp	Leu	Arg	Asp	Gly
	50					55					60			Lys
Ile	Lys	Leu	Val	Asn	Phe	Trp	Ala	Ser	Trp	Cys	Ala	Pro	Cys	Arg
65				70						75				80
Glu	His	Pro	Asn	Leu	Ile	Gly	Leu	Lys	Gln	Asp	Gly	Ile	Glu	Ile
			85						90				95	Met
Gly	Val	Asn	Trp	Lys	Asp	Thr	Pro	Asp	Gln	Ala	Gln	Gly	Phe	Leu
		100						105					110	Ala

Glu	Met	Gly	Ser	Pro	Tyr	Thr	Arg	Leu	Gly	Ala	Asp	Pro	Gly	Asn	Lys
		115					120					125			
Met	Gly	Leu	Asp	Trp	Gly	Val	Ala	Gly	Val	Pro	Glu	Thr	Phe	Val	Val
	130					135					140				
Asp	Gly	Ala	Gly	Arg	Ile	Leu	Thr	Arg	Ile	Ala	Gly	Pro	Leu	Thr	Glu
145					150					155					160
Asp	Val	Ile	Thr	Lys	Lys	Ile	Asp	Pro	Leu	Leu	Ala	Gly	Thr	Ala	Asp
				165					170					175	

<210> 184

<211> 105

<212> PRT

<213> Synechocystis

<400> 184

Met	Ala	Val	Lys	Lys	Gln	Phe	Ala	Asn	Phe	Ala	Glu	Met	Leu	Ala	Gly
1			5						10					15	
Ser	Pro	Lys	Pro	Val	Leu	Val	Asp	Phe	Tyr	Ala	Thr	Trp	Cys	Gly	Pro
			20					25					30		
Cys	Gln	Met	Met	Ala	Pro	Ile	Leu	Glu	Gln	Val	Gly	Ser	His	Leu	Arg
	35						40					45			
Gln	Gln	Ile	Gln	Val	Val	Lys	Ile	Asp	Thr	Asp	Lys	Tyr	Pro	Ala	Ile
	50					55					60				
Ala	Thr	Gln	Tyr	Gln	Ile	Gln	Ser	Leu	Pro	Thr	Leu	Val	Leu	Phe	Lys
65					70					75					80
Gln	Gly	Gln	Pro	Val	His	Arg	Met	Glu	Gly	Val	Gln	Gln	Ala	Ala	Gln
				85					90					95	
Leu	Ile	Gln	Gln	Leu	Gln	Val	Phe	Val							
			100					105							

<210> 185

<211> 109

<212> PRT

<213> Synechocystis

<400> 185

Met	Ser	Leu	Leu	Glu	Ile	Thr	Asp	Ala	Glu	Phe	Glu	Gln	Glu	Thr	Gln
1				5					10					15	
Gly	Gln	Thr	Lys	Pro	Val	Leu	Val	Tyr	Phe	Trp	Ala	Ser	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Leu	Met	Ala	Pro	Ala	Ile	Gln	Ala	Ile	Ala	Lys	Asp	Tyr
		35					40					45			
Gly	Asp	Lys	Leu	Lys	Val	Leu	Lys	Leu	Glu	Val	Asp	Pro	Asn	Pro	Ala
	50					55					60				
Ala	Val	Ala	Gln	Cys	Lys	Val	Glu	Gly	Val	Pro	Ala	Leu	Arg	Leu	Phe
65					70				75						80
Lys	Asn	Asn	Glu	Leu	Val	Met	Thr	His	Glu	Gly	Ala	Ile	Ala	Lys	Pro
				85					90					95	
Lys	Leu	Leu	Glu	Leu	Leu	Lys	Glu	Glu	Leu	Asp	Phe	Ile			
			100					105							

<210> 186

<211> 290

<212> PRT

<213> Schizosaccharomyces pombe

<400> 186

Met	Ser	Val	Ile	Glu	Ile	Arg	Ser	Tyr	Gln	His	Trp	Ile	Ser	Thr	Ile
1				5					10					15	
Pro	Lys	Ser	Gly	Tyr	Leu	Ala	Val	Asp	Cys	Tyr	Ala	Asp	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Lys	Ala	Ile	Ser	Pro	Leu	Phe	Ser	Gln	Leu	Ala	Ser	Lys	Tyr
		35					40					45			
Ala	Ser	Pro	Lys	Phe	Val	Phe	Ala	Lys	Val	Asn	Val	Asp	Glu	Gln	Arg

50						55					60				
Gln	Ile	Ala	Ser	Gly	Leu	Gly	Val	Lys	Ala	Met	Pro	Thr	Phe	Val	Phe
65					70					75					80
Phe	Glu	Asn	Gly	Lys	Gln	Ile	Asp	Met	Leu	Thr	Gly	Ala	Asn	Pro	Gln
				85					90					95	
Ala	Leu	Lys	Glu	Lys	Val	Ala	Leu	Ile	Ser	Ser	Lys	Ala	Thr	Gly	Thr
			100				105					110			
Gly	Ala	Leu	Ala	Ser	Ser	Ser	Ser	Ala	Pro	Val	Lys	Gly	Phe	Ala	Ser
		115				120						125			
Leu	Gln	Gly	Cys	Ile	Glu	Asn	Pro	Gln	Leu	Glu	Cys	Leu	Asn	Gln	Gln
	130				135						140				
Asp	Asp	His	Asp	Leu	Lys	Ser	Ala	Phe	Asn	Ser	Asn	Pro	Ser	Ser	Phe
145				150					155						160
Leu	Glu	Ser	Asp	Val	Asp	Glu	Gln	Leu	Met	Ile	Tyr	Ile	Pro	Phe	Leu
			165					170						175	
Glu	Val	Val	Lys	Val	His	Ser	Ile	Ala	Ile	Thr	Pro	Val	Lys	Gly	Glu
		180					185					190			
Thr	Ser	Ser	Ala	Pro	Lys	Thr	Ile	Lys	Leu	Tyr	Ile	Asn	Gln	Pro	Asn
	195					200						205			
Asn	Leu	Ser	Phe	Glu	Asp	Ala	Glu	Ser	Phe	Thr	Pro	Thr	Gln	Val	Ile
	210				215						220				
Glu	Asp	Ile	Val	Tyr	Glu	Gln	Asp	Asp	Gln	Pro	Thr	Ile	Ile	Pro	Leu
225					230					235					240
Arg	Phe	Val	Lys	Phe	Gln	Arg	Val	Asn	Ser	Leu	Val	Ile	Phe	Ile	Tyr
			245					250					255		
Ser	Asn	Val	Gly	Glu	Glu	Glu	Thr	Thr	Lys	Ile	Ser	Arg	Leu	Glu	Leu
		260					265					270			
Phe	Gly	Glu	Pro	Val	Gly	Asp	Ser	Ser	Lys	Gly	Lys	Leu	Gln	Lys	Val
	275					280						285			
Glu	Ala														
	290														

<210> 187
 <211> 185
 <212> PRT
 <213> Treponema pallidum

<400> 187															
Met	Phe	Arg	Ser	Asp	Leu	Val	Leu	Ala	Val	Trp	Gly	Val	Thr	Cys	Val
1				5				10						15	
Gln	Ala	Ala	Asp	Val	Ala	His	Asn	Ala	Asp	Val	Pro	Ser	Arg	Ser	Leu
			20					25					30		
Lys	Ala	Leu	Glu	Arg	Phe	Arg	Phe	Phe	Val	Tyr	Pro	Lys	Pro	Leu	Asp
	35				40						45				
Leu	Ser	Ser	Asp	Phe	His	Ala	Lys	Ala	Leu	Lys	Gly	Glu	Ala	Leu	Val
	50				55						60				
Pro	Ser	Leu	Phe	Lys	Gly	Lys	Val	Thr	Leu	Leu	Asn	Phe	Trp	Ala	Thr
65				70					75					80	
Trp	Cys	Pro	Pro	Cys	Arg	Ala	Glu	Met	Pro	Ser	Met	Asp	Arg	Met	Gln
				85				90						95	
Ala	Leu	Met	Arg	Gly	Asn	Asp	Phe	Gln	Ile	Val	Ala	Val	Asn	Val	Gly
		100					105					110			
Asp	Ser	Arg	Lys	Gln	Val	Glu	Ser	Phe	Ile	Ala	Arg	Gly	Lys	His	Thr
	115					120						125			
Phe	Pro	Ile	Tyr	Leu	Asp	Glu	Gly	Ser	Leu	Gly	Ser	Val	Phe	Ala	
	130				135					140					
Ser	Arg	Gly	Leu	Pro	Thr	Thr	Tyr	Val	Val	Asp	Lys	Ala	Gly	Arg	Ile
145					150				155					160	
Val	Ala	Val	Val	Val	Gly	Ser	Val	Glu	Tyr	Asp	Gln	Pro	Glu	Leu	Val
			165					170						175	
Ala	Leu	Phe	Lys	Glu	Leu	Ala	Arg	Asp							
			180					185							

<210> 188
 <211> 246

<212> PRT
 <213> Caenorhabditis elegans

<400> 188

Met	Leu	Leu	Arg	Leu	Leu	Ala	Val	Leu	Gly	Leu	Phe	Ala	Val	Gly	Val
1				5					10					15	
Ser	Gly	Gly	Pro	Thr	Arg	Ser	Ser	Lys	Leu	Val	Phe	Leu	Asn	Glu	Glu
			20					25					30		
Asn	Trp	Thr	Asp	Leu	Met	Lys	Gly	Glu	Trp	Met	Ile	Glu	Phe	His	Ala
		35					40					45			
Pro	Trp	Cys	Pro	Ala	Cys	Lys	Asp	Leu	Gln	Lys	Ala	Trp	Asn	Ala	Phe
		50				55					60				
Ala	Asp	Trp	Ser	Asp	Asp	Leu	Gly	Ile	Lys	Val	Gly	Glu	Val	Asp	Val
65					70					75				80	
Thr	Val	Asn	Pro	Gly	Leu	Ser	Gly	Arg	Phe	Leu	Val	Thr	Ala	Leu	Pro
				85					90					95	
Thr	Ile	Tyr	His	Val	Lys	Asp	Gly	Val	Phe	Arg	Gln	Tyr	Ser	Gly	Ala
			100					105					110		
Arg	Asp	Lys	Asn	Asp	Phe	Ile	Ser	Phe	Val	Glu	Asp	Lys	Lys	Tyr	Arg
		115					120					125			
Val	Ile	Asp	Pro	Val	Pro	Asp	Tyr	Lys	His	Pro	Asn	Ser	Lys	Gln	Met
		130				135					140				
Ala	Val	Val	Ala	Val	Phe	Lys	Leu	Ser	Met	Ser	Val	Arg	Asp	Leu	
145					150					155				160	
His	Asn	His	Leu	Val	Glu	Asp	Lys	Gly	Ile	Pro	Ser	Trp	Ala	Ser	Tyr
				165					170					175	
Gly	Leu	Phe	Ala	Gly	Val	Thr	Leu	Ala	Leu	Gly	Cys	Val	Leu	Gly	Phe
			180					185					190		
Phe	Ile	Val	Ile	Ile	Ile	Asp	Gln	Val	Phe	Pro	Thr	Gly	Pro	Arg	Lys
		195				200						205			
Ser	Gln	Gln	Ala	Lys	Lys	Thr	Glu	Lys	Lys	Asp	Ala	Lys	Lys	Asp	Ser
		210				215					220				
Gly	Thr	Glu	Ser	Pro	Thr	Lys	Lys	Asn	Gly	Asn	Asn	Asn	Asn	Gly	Lys
225					230					235				240	
Glu	Thr	Lys	Lys	Thr	Lys										
				245											

<210> 189
 <211> 284
 <212> PRT
 <213> Caenorhabditis elegans

<400> 189

Met	Pro	Val	Ile	Asn	Val	Lys	Asp	Asp	Glu	Asp	Phe	Arg	Asn	Gln	Leu
1				5					10					15	
Ser	Leu	Ala	Gly	Leu	Lys	Ser	Val	Ile	Val	Asp	Phe	Thr	Ala	Val	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Thr	Phe	Glu	Ala	Leu	Ser	Asn
		35					40					45			
Gln	Tyr	Leu	Gly	Ala	Val	Phe	Leu	Lys	Val	Asp	Val	Glu	Ile	Cys	Glu
		50				55				60					
Lys	Thr	Ser	Ser	Glu	Asn	Gly	Val	Asn	Ser	Met	Pro	Thr	Phe	Met	Val
65					70					75				80	
Phe	Gln	Ser	Gly	Val	Arg	Val	Glu	Gln	Met	Lys	Gly	Ala	Asp	Ala	Lys
				85					90					95	
Ala	Leu	Glu	Thr	Met	Val	Lys	Lys	Tyr	Ala	Asp	Asn	Ser	Ala	Ala	Asp
			100					105					110		
Ser	Leu	Val	Ala	Gly	Gln	Met	Asp	Leu	Thr	Pro	Leu	Val	Asp	Lys	Lys
		115					120					125			
Gln	Met	Glu	Cys	Leu	Asn	Glu	Ser	Asp	Asp	Thr	Pro	Leu	Gly	Arg	Phe
		130				135					140				
Leu	Glu	Gly	Asn	Cys	Asn	Leu	Val	Ser	Asp	Cys	Asp	Glu	Gln	Leu	Ile
145					150					155				160	
Ile	Ser	Leu	Pro	Phe	Asn	Gln	Pro	Val	Lys	Val	His	Ser	Ile	Leu	Ile
				165					170					175	
Lys	Gly	Val	Ser	Asp	Arg	Ala	Pro	Lys	Lys	Val	Lys	Val	Phe	Ile	Asn

Leu	Pro	Lys	Thr	Thr	Asp	Phe	Asp	Asn	Ala	Thr	Ala	Leu	Glu	Pro	Thr
		180						185					190		
Gln	Met	Leu	Glu	Phe	Asp	Glu	Ser	Ser	Ile	Gln	Gly	His	Gly	Gln	Val
		195					200					205			
Val	Ala	Leu	Lys	Tyr	Val	Lys	Phe	Gln	Asn	Val	Gln	Asn	Ile	Gln	Phe
		210					215				220				
225					230					235					240
Phe	Ile	Glu	Asn	Asn	Val	Gly	Gly	Gly	Asp	Val	Thr	Glu	Leu	Val	Lys
				245					250					255	
Leu	Thr	Val	Phe	Gly	Thr	Pro	Leu	Ser	Ala	Leu	Asn	Met	Asn	Glu	Phe
			260					265					270		
Lys	Arg	Val	Ala	Gly	Lys	Ala	Gly	Asp	Ala	Ala	His				
		275					280								

<210> 190
 <211> 287
 <212> PRT
 <213> Drosophila melanogaster

Met	Ser	Val	Arg	Val	Ile	Asn	Asp	Glu	Ser	His	Phe	Gln	Ala	Glu	Leu
1				5					10					15	
Ala	Gln	Ala	Gly	Ile	Gln	Leu	Val	Val	Val	Asp	Phe	Thr	Ala	Ser	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Lys	Arg	Ile	Ala	Pro	Ile	Phe	Glu	Thr	Phe	Pro	Thr
		35					40					45			
Lys	Tyr	Pro	Lys	Ala	Ile	Phe	Leu	Lys	Val	Asp	Val	Asp	Lys	Cys	Gln
	50					55					60				
Asp	Thr	Ala	Ala	Gly	Gln	Gly	Val	Ser	Ala	Met	Pro	Thr	Phe	Ile	Phe
	65				70				75					80	
Tyr	Arg	Asn	Arg	Thr	Lys	Ile	Asp	Arg	Val	Gln	Gly	Ala	Asp	Val	Asn
			85					90						95	
Gly	Leu	Glu	Ala	Lys	Ile	Gln	Glu	His	Ile	Gly	Thr	Ser	Gly	Gly	Glu
			100					105					110		
Glu	Gly	Gly	Glu	Asp	Tyr	Gly	Gln	Gly	Leu	Met	Glu	Leu	Asn	Thr	Phe
	115						120					125			
Ile	Ser	Lys	Gln	Glu	Cys	Glu	Cys	Leu	Asn	Glu	Ala	Asp	Asp	His	Asn
	130					135					140				
Leu	Lys	His	Ala	Leu	Ala	Ser	Ala	Gly	Gly	Tyr	Leu	Gln	Ser	Asp	Cys
	145				150					155					160
Asp	Glu	Gln	Leu	Ile	Leu	Ser	Ile	Thr	Phe	Asn	Gln	Ala	Val	Lys	Ile
				165					170					175	
His	Ser	Leu	Lys	Phe	Lys	Ala	Pro	Ser	His	Leu	Gly	Pro	Lys	Asp	Val
			180					185					190		
Lys	Leu	Phe	Ile	Asn	Gln	Pro	Arg	Thr	Ile	Asp	Phe	Asp	Met	Ala	Glu
	195						200					205			
Ser	Met	Asn	Ser	Val	Gln	Asp	Leu	Ser	Leu	Ala	Gln	Lys	Glu	Leu	Glu
	210					215					220				
Ser	Gly	Val	Pro	Val	Asn	Leu	Arg	Tyr	Val	Lys	Phe	Gln	Asn	Val	Gln
	225				230					235					240
Asn	Ile	Gln	Ile	Phe	Val	Lys	Asn	Asn	Gln	Ser	Gly	Gly	Asp	Val	Thr
				245					250					255	
Gln	Ile	Asp	Tyr	Ile	Gly	Phe	Ile	Gly	Ser	Pro	Ile	Met	Thr	Thr	Lys
			260					265					270		
Met	Asn	Asp	Phe	Lys	Arg	Val	Ala	Gly	Lys	Lys	Gly	Glu	Ser	His	
		275					280					285			

<210> 191
 <211> 289
 <212> PRT
 <213> Homo sapien

Met	Val	Gly	Val	Lys	Pro	Val	Gly	Ser	Asp	Pro	Asp	Phe	Gln	Pro	Glu
1				5					10					15	

Leu Ser Gly Ala Gly Ser Arg Leu Ala Val Val Lys Phe Thr Met Arg
 20 25 30
 Gly Cys Gly Pro Cys Leu Arg Ile Ala Pro Ala Phe Ser Ser Met Ser
 35 40 45
 Asn Lys Tyr Pro Gln Ala Val Phe Leu Glu Val Asp Val His Gln Cys
 50 55 60
 Gln Gly Thr Ala Ala Thr Asn Asn Ile Ser Ala Thr Pro Thr Phe Leu
 65 70 75 80
 Phe Phe Arg Asn Lys Val Arg Ile Asp Gln Tyr Gln Gly Ala Asp Ala
 85 90 95
 Val Gly Leu Glu Glu Lys Ile Lys Gln His Leu Glu Asn Asp Pro Gly
 100 105 110
 Ser Asn Glu Asp Thr Asp Ile Pro Lys Gly Tyr Met Asp Leu Met Pro
 115 120 125
 Phe Ile Asn Lys Ala Gly Cys Glu Cys Leu Asn Glu Ser Asp Glu His
 130 135 140
 Gly Phe Asp Asn Cys Leu Arg Lys Asp Thr Thr Phe Leu Glu Ser Asp
 145 150 155 160
 Cys Asp Glu Gln Leu Ile Thr Val Ala Phe Asn Gln Pro Val Lys
 165 170 175
 Leu Tyr Ser Met Lys Phe Gln Gly Pro Asp Asn Gly Gln Gly Pro Lys
 180 185 190
 Tyr Val Lys Ile Phe Ile Asn Leu Pro Arg Ser Met Asp Phe Glu Glu
 195 200 205
 Ala Glu Arg Ser Glu Pro Thr Gln Ala Leu Glu Leu Thr Glu Asp Asp
 210 215 220
 Ile Lys Glu Asp Gly Ile Val Pro Leu Arg Tyr Val Lys Phe Gln Asn
 225 230 235 240
 Val Asn Ser Val Thr Ile Phe Val Gln Ser Asn Gln Gly Glu Glu Glu
 245 250 255
 Thr Thr Arg Ile Ser Tyr Phe Thr Phe Ile Gly Thr Pro Val Gln Ala
 260 265 270
 Thr Asn Met Asn Asp Phe Lys Arg Val Val Gly Lys Lys Gly Glu Ser
 275 280 285
 His

<210> 192
 <211> 335
 <212> PRT
 <213> Homo sapien

<400> 192
 Met Glu Ala Gly Ala Ala Glu Ala Ala Val Ala Ala Val Glu Glu Val
 1 5 10 15
 Gly Ser Ala Gly Gln Phe Glu Glu Leu Arg Leu Lys Ala Lys Ser
 20 25 30
 Leu Leu Val Val His Phe Trp Ala Pro Trp Ala Pro Gln Cys Ala Gln
 35 40 45
 Met Asn Glu Val Met Ala Glu Leu Ala Lys Glu Leu Pro Gln Val Ser
 50 55 60
 Phe Val Lys Leu Glu Ala Glu Gly Val Pro Glu Val Ser Glu Lys Tyr
 65 70 75 80
 Glu Ile Ser Ser Val Pro Thr Phe Leu Phe Lys Asn Ser Gln Lys
 85 90 95
 Ile Asp Arg Leu Asp Gly Ala His Ala Pro Glu Leu Thr Lys Lys Val
 100 105 110
 Gln Arg His Ala Ser Ser Gly Ser Phe Leu Pro Ser Ala Asn Glu His
 115 120 125
 Leu Lys Glu Asp Leu Asn Leu Arg Leu Lys Lys Leu Thr His Ala Ala
 130 135 140
 Pro Cys Met Leu Phe Met Lys Gly Thr Pro Gln Glu Pro Arg Cys Gly
 145 150 155 160
 Phe Ser Lys Gln Met Val Glu Ile Leu His Lys His Asn Ile Gln Phe
 165 170 175
 Ser Ser Phe Asp Ile Phe Ser Asp Glu Glu Val Arg Gln Gly Leu Lys

Ala	Tyr	Ser	180	Ser	Trp	Pro	Thr	Tyr	185	Pro	Gln	Leu	Tyr	Val	190	Ser	Gly	Glu
		195						200						205				
Leu	Ile	Gly	Gly	Leu	Asp	Ile	Ile	Lys	Glu	Leu	Glu	Ala	Ser	Glu	Glu			
	210					215					220							
Leu	Asp	Thr	Ile	Cys	Pro	Lys	Ala	Pro	Lys	Leu	Glu	Glu	Arg	Leu	Lys			
225				230						235					240			
Val	Leu	Thr	Asn	Lys	Ala	Ser	Val	Met	Leu	Phe	Met	Lys	Gly	Asn	Lys			
			245						250					255				
Gln	Glu	Ala	Lys	Cys	Gly	Phe	Ser	Lys	Gln	Ile	Leu	Glu	Ile	Leu	Asn			
		260						265					270					
Ser	Thr	Gly	Val	Glu	Tyr	Glu	Thr	Phe	Asp	Ile	Leu	Glu	Asp	Glu	Glu			
	275					280							285					
Val	Arg	Gln	Gly	Leu	Lys	Ala	Tyr	Ser	Asn	Trp	Pro	Thr	Tyr	Pro	Gln			
	290					295				300								
Leu	Tyr	Val	Lys	Gly	Glu	Leu	Val	Gly	Gly	Leu	Asp	Ile	Val	Lys	Glu			
305				310					315						320			
Leu	Lys	Glu	Asn	Gly	Glu	Leu	Leu	Pro	Ile	Leu	Arg	Gly	Glu	Asn				
			325					330						335				

<210> 193
 <211> 131
 <212> PRT
 <213> Phalaris coerulescens

<400> 193																		
Met	Gly	Gly	Cys	Val	Gly	Lys	Asp	Arg	Gly	Ile	Val	Glu	Asp	Lys	Leu			
1			5						10					15				
Asp	Phe	Lys	Gly	Gly	Asn	Val	His	Val	Ile	Thr	Thr	Lys	Glu	Asp	Trp			
		20						25					30					
Asp	Gln	Lys	Ile	Ala	Glu	Ala	Asn	Lys	Asp	Gly	Lys	Ile	Val	Val	Ala			
	35						40					45						
Asn	Phe	Ser	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg	Val	Ile	Ala	Pro	Val			
	50					55					60							
Tyr	Ala	Glu	Met	Ser	Lys	Thr	Tyr	Pro	Gln	Leu	Met	Phe	Leu	Thr	Ile			
65				70					75					80				
Asp	Val	Asp	Asp	Leu	Val	Asp	Phe	Ser	Ser	Thr	Trp	Asp	Ile	Arg	Ala			
			85					90					95					
Thr	Pro	Thr	Phe	Phe	Phe	Leu	Lys	Asn	Gly	Gln	Gln	Ile	Asp	Lys	Leu			
		100						105					110					
Val	Gly	Ala	Asn	Lys	Pro	Glu	Leu	Glu	Lys	Lys	Val	Gln	Ala	Leu	Gly			
	115					120						125						
Asp	Gly	Ser																
	130																	

<210> 194
 <211> 144
 <212> PRT
 <213> Trypanosoma brucei brucei

<400> 194																		
Met	Ser	Gly	Leu	Ala	Lys	Tyr	Leu	Pro	Gly	Ala	Thr	Asn	Leu	Leu	Ser			
1			5						10					15				
Lys	Ser	Gly	Glu	Val	Ser	Leu	Gly	Ser	Leu	Val	Gly	Lys	Thr	Val	Phe			
		20						25					30					
Leu	Tyr	Phe	Ser	Ala	Ser	Trp	Cys	Pro	Pro	Cys	Arg	Gly	Phe	Thr	Pro			
	35						40					45						
Val	Leu	Ala	Glu	Phe	Tyr	Glu	Lys	His	His	Val	Ala	Lys	Asn	Phe	Glu			
	50					55					60							
Val	Val	Leu	Ile	Ser	Trp	Asp	Glu	Asn	Glu	Ser	Asp	Phe	His	Asp	Tyr			
65				70					75					80				
Tyr	Gly	Lys	Met	Pro	Trp	Leu	Ala	Leu	Pro	Phe	Asp	Gln	Arg	Ser	Thr			
			85					90					95					
Val	Ser	Glu	Leu	Gly	Lys	Thr	Phe	Gly	Val	Glu	Ser	Ile	Pro	Thr	Leu			
		100						105					110					

Ile	Thr	Ile	Asn	Ala	Asp	Thr	Gly	Ala	Ile	Ile	Gly	Thr	Gln	Ala	Arg
		115					120					125			
Thr	Arg	Val	Ile	Glu	Asp	Pro	Asp	Gly	Ala	Asn	Phe	Pro	Trp	Pro	Asn
	130					135					140				

<210> 195
 <211> 333
 <212> PRT
 <213> Arabidopsis thaliana

<400> 195															
Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr	Arg	Leu	Cys	Ile	Val	Gly	Ser
1				5					10					15	
Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu
		20						25					30		
Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly
		35					40					45			
Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro
	50					55					60				
Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser
65				70					75					80	
Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp
				85					90					95	
Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu
			100					105					110		
Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser
		115					120					125			
Phe	Val	Gly	Ser	Gly	Glu	Ala	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile
	130					135					140				
Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys
145				150					155					160	
Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn
			165					170						175	
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp
		180						185					190		
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro
	195						200					205			
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp
	210					215					220				
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr
225				230						235				240	
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly
			245						250					255	
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser
		260						265					270		
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro
		275					280					285			
Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala
	290					295					300				
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His
305				310						315				320	
Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp			
			325						330						

<210> 196
 <211> 383
 <212> PRT
 <213> Arabidopsis thaliana

<400> 196															
Met	Cys	Trp	Ile	Ser	Met	Ser	Gln	Ser	Arg	Phe	Ile	Ile	Lys	Ser	Leu
1				5					10					15	
Phe	Ser	Thr	Ala	Gly	Gly	Phe	Leu	Leu	Gly	Ser	Ala	Leu	Ser	Asn	Pro
		20						25					30		
Pro	Ser	Leu	Ala	Thr	Ala	Phe	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ala

Phe	Lys	Gly	Glu	Glu	Glu	Phe	Leu	Gly	Arg	Gly	Val	Ser	Tyr	Cys	Gly
130						135					140				
Val	Cys	Asp	Ala	Ala	Phe	Phe	Lys	Asp	Gln	Pro	Val	Ala	Val	Ile	Gly
145					150					155					160
Asp	Asp	Asp	Tyr	Ala	Ile	Glu	Glu	Ala	Glu	Phe	Ile	Ala	Arg	Phe	Ala
				165					170					175	
Asn	Lys	Val	Phe	Phe	Val	Val	Pro	Gly	Ser	Lys	Ile	Lys	Ala	Pro	Pro
			180					185					190		
Glu	Val	Ile	Glu	His	Phe	Glu	Lys	Leu	Pro	Asn	Val	Glu	Ile	Leu	Leu
		195					200					205			
Arg	His	Arg	Pro	Ile	Glu	Ile	Val	Gly	Asp	Gln	Val	Val	Lys	Gly	Ile
	210				215					220					
Lys	Leu	Lys	Asp	Leu	Glu	Lys	Lys	Glu	Glu	Lys	Leu	Leu	Glu	Val	Asn
225					230					235					240
Gly	Val	Phe	Ile	Phe	Leu	Gly	Gly	Thr	Lys	Pro	Ser	Val	Asp	Phe	Leu
				245				250						255	
Met	Gly	Gln	Val	Glu	Met	Thr	Glu	Gly	Asp	Cys	Ile	Val	Val	Asn	Glu
			260					265					270		
Glu	Met	Met	Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Leu
		275					280					285			
Cys	Asn	Glu	Val	Lys	Gln	Ala	Val	Val	Ala	Ala	Ala	Met	Gly	Cys	Lys
	290					295					300				
Ala	Ala	Leu	Ala	Val	Asp	Lys	Phe	Leu	Ser	Gly	Lys	Lys	Lys	Ile	Val
305					310					315					320
Pro	Gln	Trp													

<210> 198
 <211> 315
 <212> PRT
 <213> Bacillus subtilis

<400> 198

Ser	Glu	Glu	Lys	Ile	Tyr	Asp	Val	Ile	Ile	Ile	Gly	Ala	Gly	Pro	Ala
1				5					10					15	
Gly	Met	Thr	Ala	Ala	Val	Tyr	Thr	Ser	Arg	Ala	Asn	Leu	Ser	Thr	Leu
			20					25					30		
Met	Ile	Glu	Arg	Gly	Ile	Pro	Gly	Gly	Gln	Met	Ala	Asn	Thr	Glu	Asp
		35					40					45			
Val	Glu	Asn	Tyr	Pro	Gly	Phe	Glu	Ser	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	50				55						60				
Asn	Lys	Met	Phe	Glu	His	Ala	Lys	Lys	Phe	Gly	Ala	Glu	Tyr	Ala	Tyr
65				70					75					80	
Gly	Asp	Ile	Lys	Glu	Val	Ile	Asp	Gly	Lys	Glu	Tyr	Lys	Val	Val	Lys
			85					90					95		
Ala	Gly	Ser	Lys	Glu	Tyr	Lys	Ala	Arg	Ala	Val	Ile	Ile	Ala	Ala	Gly
			100					105					110		
Ala	Glu	Tyr	Lys	Lys	Ile	Gly	Val	Pro	Gly	Glu	Lys	Glu	Leu	Gly	Gly
		115					120					125			
Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe	Lys	Gly
	130					135					140				
Lys	Glu	Leu	Val	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu	Glu	Gly
145				150					155					160	
Val	Tyr	Leu	Thr	Arg	Phe	Ala	Ser	Lys	Val	Thr	Ile	Val	His	Arg	Arg
			165					170					175		
Asp	Lys	Leu	Arg	Ala	Gln	Ser	Ile	Leu	Gln	Ala	Arg	Ala	Phe	Asp	Asn
		180					185					190			
Glu	Lys	Val	Asp	Phe	Leu	Trp	Asn	Lys	Thr	Val	Lys	Glu	Ile	His	Glu
		195					200					205			
Glu	Asn	Gly	Lys	Val	Gly	Asn	Val	Thr	Leu	Val	Asp	Thr	Val	Thr	Gly
	210					215					220				
Glu	Glu	Ser	Glu	Phe	Lys	Thr	Asp	Gly	Val	Phe	Ile	Tyr	Ile	Gly	Met
225					230					235				240	
Leu	Pro	Leu	Ser	Lys	Pro	Phe	Glu	Asn	Leu	Gly	Ile	Thr	Asn	Glu	Glu
			245					250					255		
Gly	Tyr	Ile	Glu	Thr	Asn	Asp	Arg	Met	Glu	Thr	Lys	Val	Glu	Gly	Ile

260 265 270
 Phe Ala Ala Gly Asp Ile Arg Glu Lys Ser Leu Arg Gln Ile Val Thr
 275 280 285
 Ala Thr Gly Asp Gly Ser Ile Ala Ala Gln Ser Val Gln His Tyr Val
 290 295 300
 Glu Glu Leu Gln Glu Thr Leu Lys Thr Leu Lys
 305 310 315

<210> 199
 <211> 326
 <212> PRT
 <213> *Borrelia burgdorferi*

<400> 199
 Met Leu Glu Phe Glu Thr Ile Asp Ile Asn Leu Thr Lys Lys Lys Asn
 1 5 10 15
 Leu Ser Gln Lys Glu Val Asp Phe Ile Glu Asp Val Ile Ile Val Gly
 20 25 30
 Ser Gly Pro Ala Gly Leu Thr Ala Gly Ile Tyr Ser Val Met Ser Asn
 35 40 45
 Tyr Lys Ala Ala Ile Leu Glu Gly Pro Glu Pro Gly Gly Gln Leu Thr
 50 55 60
 Thr Thr Thr Glu Val Tyr Asn Tyr Pro Gly Phe Lys Asn Gly Ile Ser
 65 70 75 80
 Gly Arg Asn Leu Met Leu Asn Met Arg Glu Gln Val Val Asn Leu Gly
 85 90 95
 Ala Lys Thr Phe Pro Glu Thr Val Phe Ser Ile Lys Arg Lys Gly Asn
 100 105 110
 Ile Phe Tyr Leu Tyr Thr Glu Asn Tyr Ile Tyr Lys Ser Lys Ala Val
 115 120 125
 Ile Ile Ala Val Gly Ser Lys Pro Lys Lys Leu Glu Thr Leu Lys Asn
 130 135 140
 Ser Gly Leu Phe Trp Asn Lys Gly Ile Ser Val Cys Ala Ile Cys Asp
 145 150 155 160
 Gly His Leu Phe Lys Gly Lys Arg Val Ala Val Ile Gly Gly Gly Asn
 165 170 175
 Thr Ala Leu Ser Glu Ser Ile Tyr Leu Ser Lys Leu Val Asp Lys Val
 180 185 190
 Tyr Leu Ile Val Arg Lys Asn Asn Leu Arg Ala Ile Ala Met Leu Arg
 195 200 205
 Asp Ser Val Ala Lys Leu Pro Asn Ile Glu Ile Leu Tyr Asn Ser Glu
 210 215 220
 Ala Ile Glu Val Asp Gly Lys Ser Ser Val Ser Ser Val Lys Ile Phe
 225 230 235 240
 Asn Lys Lys Asp Asn Val Val Tyr Glu Leu Glu Val Ser Ala Val Phe
 245 250 255
 Met Ala Val Gly Tyr Lys Pro Asn Thr Glu Phe Leu Lys Gly Phe Leu
 260 265 270
 Asp Leu Asp Glu Glu Gly Phe Ile Val Thr Lys Asp Val Val Lys Thr
 275 280 285
 Ser Val Asp Gly Val Phe Ser Cys Gly Asp Val Ser Asn Lys Leu Tyr
 290 295 300
 Ala Gln Ala Ile Thr Ala Ala Ala Glu Gly Phe Ile Ala Ser Val Glu
 305 310 315 320
 Leu Gly Asn Phe Leu Lys
 325

<210> 200
 <211> 319
 <212> PRT
 <213> *Buchnera aphidicola*

<400> 200
 Met Asp Lys Val Lys His Ser Lys Ile Ile Ile Leu Gly Ser Gly Pro
 1 5 10 15

Ala	Gly	Tyr	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Asp	Pro
			20					25					30		
Phe	Leu	Ile	Thr	Gly	Thr	Asn	Lys	Gly	Gly	Gln	Leu	Met	Asn	Thr	Asn
		35					40					45			
Glu	Ile	Glu	Asn	Trp	Pro	Gly	Asp	Tyr	Asn	Lys	Ile	Ser	Gly	Ser	Glu
	50					55					60				
Leu	Met	Asn	Arg	Met	Tyr	Lys	His	Ala	Ile	Glu	Leu	Lys	Thr	Lys	Val
65					70					75					80
Ile	Cys	Asp	Thr	Val	Ile	Ser	Val	Asn	Phe	Lys	Lys	Asn	Pro	Phe	Phe
			85						90					95	
Leu	Ile	Gly	Glu	Asn	Asn	Lys	Tyr	Thr	Ala	Asp	Ser	Val	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Asn	Pro	Arg	Tyr	Leu	Gly	Leu	Gln	Ser	Glu	Ser	Leu	Phe
		115					120					125			
Lys	Gly	Lys	Gly	Val	Ser	Thr	Cys	Ala	Val	Cys	Asp	Gly	Phe	Phe	Tyr
	130					135					140				
Lys	Asn	Lys	Glu	Val	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Ile	Glu
145					150					155					160
Glu	Thr	Leu	Tyr	Leu	Ser	Asn	Phe	Val	Lys	Lys	Val	His	Leu	Ile	His
			165						170					175	
Arg	Gly	Ile	Asn	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Leu	Asp	Arg	Leu	Glu
			180					185					190		
Lys	Lys	Ile	Lys	Ser	Gln	Lys	Ile	Ile	Tyr	Leu	Asn	Ser	Ile	Val	
		195					200				205				
Lys	Asn	Ile	Leu	Gly	Asn	Ser	Ser	Gly	Val	Thr	Ala	Leu	Leu	Ile	Glu
	210				215						220				
Gln	Lys	Asn	Ser	Lys	Glu	Lys	Thr	Glu	Ser	Lys	Ile	Gln	Val	Ser	Gly
225					230					235					240
Leu	Phe	Val	Ala	Ile	Gly	Tyr	Thr	Pro	Asn	Thr	Asn	Ile	Phe	Val	Asn
			245						250					255	
Lys	Leu	Lys	Met	Lys	Asp	Gly	Tyr	Ile	Gln	Val	Thr	Arg	Gln	Glu	His
			260					265					270		
Gly	Asn	Tyr	Thr	Gln	Thr	Ser	Ile	Pro	Gly	Ile	Phe	Ala	Ala	Gly	Asp
		275					280					285			
Val	Ile	Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ser	Ala	Ser	Gly
	290					295					300				
Cys	Met	Ala	Ala	Leu	Asp	Ser	Glu	Arg	Tyr	Ile	Asn	Ser	Leu	Val	
305					310					315					

<210> 201
 <211> 319
 <212> PRT
 <213> Buchnera aphidicola

<400> 201

Met	Glu	Leu	Lys	Asn	His	Lys	Lys	Ile	Ile	Ile	Leu	Gly	Ser	Gly	Pro
1				5				10						15	
Ala	Gly	Tyr	Thr	Ala	Ala	Ile	Tyr	Ser	Ser	Arg	Ala	Asn	Leu	Asn	Pro
			20					25					30		
Leu	Leu	Ile	Thr	Gly	Ile	Asn	Lys	Gly	Gly	Gln	Leu	Met	Asn	Thr	Asn
		35					40					45			
Glu	Ile	Glu	Asn	Trp	Pro	Gly	Asp	Phe	Lys	Lys	Ile	Thr	Gly	Pro	Glu
	50					55					60				
Leu	Met	Asn	Arg	Met	His	Glu	His	Ser	Leu	Lys	Phe	Lys	Thr	Glu	Ile
65					70					75					80
Val	Tyr	Asp	Asn	Ile	Ile	Ser	Val	Glu	Phe	Lys	Lys	Lys	Pro	Phe	Phe
			85						90					95	
Leu	Leu	Gly	Glu	Tyr	Asn	Lys	Tyr	Thr	Cys	Asp	Ala	Val	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Asn	Pro	Arg	Tyr	Leu	Gly	Leu	Ser	Ser	Glu	Asn	Lys	Phe
		115					120					125			
Lys	Gly	Lys	Gly	Ile	Ser	Thr	Cys	Ala	Val	Cys	Asp	Gly	Phe	Phe	Tyr
	130					135					140				
Lys	Asn	Lys	Glu	Ile	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Ile	Glu
145					150					155					160
Glu	Thr	Leu	Tyr	Leu	Ser	Asn	Phe	Val	Lys	Lys	Ile	Tyr	Leu	Ile	His

Arg	Arg	Asn	Asn	165 Phe	Lys	Ala	Glu	Lys	170 Ile	Leu	Ile	Asp	Arg	175 Leu	Leu
Lys	Ile	Val	Lys	180 Thr	Lys	Lys	Val	185 Ile	Leu	His	Leu	Asn	190 Ser	Thr	Ile
Glu	Asp	Ile	Leu	195 Gly	Asn	Asn	Lys	200 Gly	Val	Thr	His	Leu	205 Leu	Ile	Lys
Asn	Lys	Asn	Leu	210 Lys	Glu	Lys	Lys	215 Lys	Leu	Lys	Ile	Ala	220 Val	Ser	Gly
225	Leu	Phe	Val	Ala	Ile	Gly	Tyr	Ile	Pro	Asn	Thr	Asp	Ile	Phe	Thr
240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315
Gln	Leu	Lys	Met	Lys	Asp	Gly	Tyr	Ile	Lys	Ile	Lys	Lys	Gly	Thr	His
Gly	Asn	Tyr	Thr	Gln	Thr	Asn	Ile	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp
Val	Ile	Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ser	Ala	Ser	Gly
Cys	Met	Ala	Ala	Leu	Asp	Ser	Glu	Arg	Tyr	Leu	Asn	Ser	Leu	Ser	

<210> 202
 <211> 312
 <212> PRT
 <213> Chlamydia muridarum

Met	Thr	His	Val	Lys	Leu	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr
1	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
Thr	Ala	Ala	Ile	Tyr	Ala	Ser	Arg	Ala	Leu	Leu	Thr	Pro	Ile	Leu	Phe
Glu	Gly	Phe	Ser	Gly	Ile	Ala	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr	
Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Gln	Gly	Val	Leu	Gly	His	Gln
Leu	Met	Glu	Asn	Met	Lys	Met	Gln	Ala	Gln	Arg	Phe	Gly	Thr	Gln	Val
Ile	Ala	Lys	Asp	Ile	Thr	Ser	Val	Asp	Phe	Ser	Val	Arg	Pro	Phe	Val
Leu	Lys	Ser	Gly	Glu	Asp	Thr	Phe	Thr	Cys	Asp	Ala	Cys	Ile	Ile	Ala
Thr	Gly	Ala	Ser	Ala	Lys	Arg	Leu	Ser	Ile	Pro	Gly	Ala	Gly	Asp	Asn
Glu	Phe	Trp	Gln	Lys	Gly	Val	Thr	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala
Ser	Pro	Ile	Phe	Arg	Asp	Arg	Asp	Leu	Phe	Val	Ile	Gly	Gly	Gly	Asp
145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
Ser	Ala	Leu	Glu	Glu	Ala	Met	Phe	Leu	Thr	Arg	Tyr	Gly	Lys	Arg	Val
Phe	Val	Val	His	Arg	Arg	Asp	Thr	Leu	Arg	Ala	Ser	Lys	Ala	Met	Val
Asn	Lys	Ala	Gln	Ala	Asn	Glu	Lys	Ile	Val	Phe	Leu	Trp	Asn	Ser	Glu
Val	Val	Lys	Ile	Leu	Gly	Asp	Ser	Leu	Val	Arg	Ser	Ile	Asp	Ile	Phe
Asn	Asn	Val	Glu	Lys	Thr	Thr	Val	Thr	Met	Glu	Ala	Ala	Gly	Val	Phe
225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300
Phe	Ala	Ile	Gly	His	Gln	Pro	Asn	Thr	Ala	Phe	Leu	Gly	Gly	Gln	Leu
Ser	Leu	Asp	Glu	Asn	Gly	Tyr	Ile	Ile	Thr	Glu	Lys	Gly	Ser	Ser	Arg
Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Tyr
Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly	Cys	Met	Ala	Ala	Leu
Asp	Ala	Glu	Arg	Phe	Leu	Glu	Lys								
305	310														

<210> 203
 <211> 311
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 203
 Met Ile His Ser Arg Leu Ile Ile Ile Gly Ser Gly Pro Ser Gly Tyr
 1 5 10 15
 Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu His Pro Leu Leu Phe
 20 25 30
 Glu Gly Phe Phe Ser Gly Ile Ser Gly Gly Gln Leu Met Thr Thr Thr
 35 40 45
 Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile Leu Gly Pro Lys
 50 55 60
 Leu Met Asn Asn Met Lys Glu Gln Ala Val Arg Phe Gly Thr Lys Thr
 65 70 75 80
 Leu Ala Gln Asp Ile Ile Ser Val Asp Phe Ser Val Arg Pro Phe Ile
 85 90 95
 Leu Lys Ser Lys Glu Glu Thr Tyr Ser Cys Asp Ala Cys Ile Ile Ala
 100 105 110
 Thr Gly Ala Ser Ala Lys Arg Leu Glu Ile Pro Gly Ala Gly Asn Asp
 115 120 125
 Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala
 130 135 140
 Ser Pro Ile Phe Lys Asn Lys Asp Leu Tyr Val Ile Gly Gly Gly Asp
 145 150 155 160
 Ser Ala Leu Glu Glu Ala Leu Tyr Leu Thr Arg Tyr Gly Ser His Val
 165 170 175
 Tyr Val Val His Arg Arg Asp Lys Leu Arg Ala Ser Lys Ala Met Glu
 180 185 190
 Ala Arg Ala Gln Asn Asn Glu Lys Ile Thr Phe Leu Trp Asn Ser Glu
 195 200 205
 Ile Val Lys Ile Ser Gly Asp Ser Ile Val Arg Ser Val Asp Ile Lys
 210 215 220
 Asn Val Gln Thr Gln Glu Ile Thr Thr Arg Glu Ala Ala Gly Val Phe
 225 230 235 240
 Phe Ala Ile Gly His Lys Pro Asn Thr Asp Phe Leu Gly Gly Gln Leu
 245 250 255
 Thr Leu Asp Glu Ser Gly Tyr Ile Val Thr Glu Lys Gly Thr Ser Lys
 260 265 270
 Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr
 275 280 285
 Tyr Arg Gln Ala Val Thr Ser Ala Gly Ser Gly Cys Ile Ala Ala Leu
 290 295 300
 Asp Ala Glu Arg Phe Leu Gly
 305 310

<210> 204
 <211> 312
 <212> PRT
 <213> Chlamydia trachomatis

<400> 204
 Met Thr His Ala Lys Leu Val Ile Ile Gly Ser Gly Pro Ala Gly Tyr
 1 5 10 15
 Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu Thr Pro Val Leu Phe
 20 25 30
 Glu Gly Phe Phe Ser Gly Ile Ala Gly Gly Gln Leu Met Thr Thr Thr
 35 40 45
 Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Val Leu Gly His Gln
 50 55 60
 Leu Met Asp Leu Met Lys Thr Gln Ala Gln Arg Phe Gly Thr Gln Val
 65 70 75 80
 Leu Ser Lys Asp Ile Thr Ala Val Asp Phe Ser Val Arg Pro Phe Val
 85 90 95

Leu	Lys	Ser	Gly	Lys	Glu	Thr	Phe	Thr	Cys	Asp	Ala	Cys	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Ser	Ala	Lys	Arg	Leu	Ser	Ile	Pro	Gly	Ala	Gly	Asp	Asn
		115					120					125			
Glu	Phe	Trp	Gln	Lys	Gly	Val	Thr	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala
		130				135					140				
Ser	Pro	Ile	Phe	Arg	Asp	Lys	Asp	Leu	Phe	Val	Val	Gly	Gly	Gly	Asp
145					150					155					160
Ser	Ala	Leu	Glu	Glu	Ala	Met	Phe	Leu	Thr	Arg	Tyr	Gly	Lys	Arg	Val
			165					170						175	
Phe	Val	Val	His	Arg	Arg	Asp	Thr	Leu	Arg	Ala	Ser	Lys	Val	Met	Val
			180					185					190		
Asn	Lys	Ala	Gln	Ala	Asn	Glu	Lys	Ile	Phe	Phe	Leu	Trp	Asn	Ser	Glu
		195					200					205			
Ile	Val	Lys	Ile	Ser	Gly	Asp	Thr	Leu	Val	Arg	Ser	Ile	Asp	Ile	Tyr
		210				215					220				
Asn	Asn	Val	Asp	Glu	Thr	Thr	Thr	Thr	Met	Glu	Ala	Ala	Gly	Val	Phe
225					230					235					240
Phe	Ala	Ile	Gly	His	Gln	Pro	Asn	Thr	Ala	Phe	Leu	Gly	Gly	Gln	Val
			245						250					255	
Ala	Leu	Asp	Glu	Asn	Gly	Tyr	Ile	Ile	Thr	Glu	Lys	Gly	Ser	Ser	Arg
			260					265					270		
Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Tyr
		275				280						285			
Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly	Cys	Met	Ala	Ala	Leu
		290				295					300				
Asp	Ala	Glu	Arg	Phe	Leu	Glu	Asn								
305					310										

<210> 205
 <211> 315
 <212> PRT
 <213> Clostridium litorale

<400> 205

Met	Glu	Asn	Val	Tyr	Asp	Ile	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly
1				5				10					15		
Leu	Ala	Ala	Ala	Leu	Tyr	Gly	Ala	Arg	Ala	Lys	Met	Lys	Thr	Leu	Leu
			20					25					30		
Leu	Glu	Gly	Met	Lys	Val	Gly	Gly	Gln	Ile	Val	Ile	Thr	His	Glu	Val
		35				40						45			
Ala	Asn	Tyr	Pro	Gly	Ser	Val	Pro	Glu	Ala	Thr	Gly	Pro	Ser	Leu	Ile
		50				55					60				
Gly	Arg	Met	Glu	Glu	Gln	Val	Glu	Glu	Phe	Gly	Ala	Glu	Arg	Val	Met
65					70				75						80
Asp	Asn	Ile	Val	Asp	Val	Asp	Phe	Thr	Asp	Lys	Ile	Lys	Val	Leu	Lys
			85					90						95	
Gly	Ala	Lys	Gly	Glu	Tyr	Lys	Ala	Lys	Ala	Val	Ile	Val	Ala	Thr	Gly
			100					105					110		
Ala	Ser	Pro	Lys	Leu	Ala	Gly	Cys	Pro	Gly	Glu	Lys	Glu	Leu	Thr	Gly
		115					120					125			
Lys	Gly	Val	Ser	Tyr	Cys	Ala	Thr	Cys	Asp	Ala	Asp	Phe	Phe	Glu	Asp
		130				135					140				
Met	Glu	Val	Phe	Val	Ile	Gly	Gly	Gly	Asp	Thr	Ala	Val	Glu	Glu	Ala
145					150				155						160
Met	Phe	Leu	Thr	Lys	Phe	Ala	Arg	Lys	Val	Thr	Ile	Val	His	Arg	Arg
			165					170					175		
Ala	Glu	Leu	Arg	Ala	Ala	Lys	Ser	Ile	Gln	Glu	Lys	Ala	Phe	Lys	Asn
			180					185					190		
Glu	Lys	Leu	Asn	Phe	Met	Trp	Asn	Thr	Val	Ile	Glu	Glu	Ile	Lys	Gly
		195					200					205			
Asp	Gly	Ile	Val	Glu	Ser	Ala	Val	Phe	Lys	Asn	Arg	Glu	Thr	Gly	Glu
		210				215					220				
Val	Thr	Glu	Phe	Val	Ala	Pro	Glu	Glu	Asp	Gly	Thr	Phe	Gly	Ile	Phe
225					230				235						240
Val	Phe	Ile	Gly	Tyr	Asp	Pro	Lys	Ser	Ala	Leu	Val	Glu	Gly	Lys	Leu

				245					250				255				
Glu	Leu	Asp	Glu	Thr	Gly	Tyr	Ile	Pro	Thr	Asp	Asp	Asn	Met	Lys	Thr		
			260					265					270				
Asn	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Ile	Arg	Val	Lys	Ser	Leu		
		275					280					285					
Arg	Gln	Val	Val	Thr	Ala	Thr	Ala	Asp	Gly	Ala	Ile	Ala	Ala	Val	Gln		
	290					295					300						
Ala	Glu	Lys	Tyr	Ile	Glu	Glu	Leu	Phe	Ala	Glu							
305					310					315							

<210> 206
 <211> 321
 <212> PRT
 <213> Coxiella burnetii

<400> 206																	
Met	Asn	Lys	Pro	Gln	His	His	Ser	Leu	Ile	Ile	Leu	Gly	Ser	Gly	Pro		
1				5					10					15			
Ala	Gly	Tyr	Thr	Asp	Ala	Ile	Tyr	Val	Ala	Arg	Ala	Asn	Leu	Lys	Pro		
			20					25					30				
Ile	Met	Ile	Thr	Gly	Met	Glu	Gln	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr		
		35				40						45					
Asp	Val	Ala	Asn	Trp	Pro	Gly	Glu	Ala	Pro	Gly	Leu	Gln	Gly	Pro	Lys		
	50					55					60						
Leu	Leu	Glu	Arg	Met	Gln	Lys	His	Ala	Gly	Gly	Ala	Leu	Asn	Thr	Gln		
	65				70					75					80		
Phe	Ile	Phe	Asp	His	Ile	Asn	Lys	Pro	Asp	Leu	Asn	Pro	Arg	Pro	Phe		
				85					90					95			
Leu	Leu	Gln	Gly	Asp	Asn	Ala	Thr	Tyr	Ser	Cys	Asp	Ala	Leu	Ile	Ile		
			100					105					110				
Ala	Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Lys	Pro		
		115					120						125				
Tyr	Met	Gly	Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe		
	130					135						140					
Tyr	Arg	Ala	Lys	Lys	Val	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ser	Val		
	145				150					155					160		
Glu	Glu	Ala	Leu	Tyr	Leu	Ser	His	Ile	Ala	Ser	His	Val	Thr	Leu	Ile		
				165					170					175			
His	Arg	Arg	Asp	Lys	Leu	Arg	Ala	Glu	Lys	Met	Leu	Ser	Ala	Gln	Leu		
			180					185					190				
Ile	Lys	Lys	Val	Glu	Glu	Gly	Lys	Val	Ala	Ile	Val	Trp	Ser	His	Val		
		195					200					205					
Ile	Glu	Glu	Val	Leu	Gly	Asp	Asp	Gln	Gly	Val	Thr	Gly	Val	His	Leu		
	210					215					220						
Lys	His	Val	Lys	Glu	Glu	Lys	Thr	Gln	Asp	Leu	Thr	Ile	Asp	Gly	Leu		
	225				230					235					240		
Phe	Ile	Ala	Ile	Gly	His	Asp	Pro	Asn	Thr	Lys	Ile	Phe	Lys	Glu	Gln		
				245				250						255			
Leu	Glu	Met	Asp	Glu	Ala	Gly	Tyr	Leu	Arg	Ala	Lys	Ser	Gly	Leu	Gln		
		260						265					270				
Gly	Asn	Ala	Thr	Ala	Thr	Asn	Ile	Pro	Gly	Val	Phe	Pro	Ala	Val	Val		
		275					280						285				
Val	Arg	Gly	Gln	Leu	Tyr	Arg	Gln	Thr	Ile	Ala	Ala	Ala	Gly	Met	Gly		
	290					295				300							
Cys	Met	Pro	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Ser	Leu	Asn	Gln		
	305				310					315					320		
Ala																	

<210> 207
 <211> 320
 <212> PRT
 <213> Escherichia coli

<400> 207

Gly Thr Thr Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro Ala
 1 5 10 15
 Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro Val
 20 25 30
 Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr Glu
 35 40 45
 Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu Leu
 50 55 60
 Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile Ile
 65 70 75 80
 Phe Asp His Ile Asn Lys Val Asp Leu Gln Asn Arg Pro Phe Arg Leu
 85 90 95
 Asn Gly Asp Asn Gly Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ala Thr
 100 105 110
 Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe Lys
 115 120 125
 Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr Arg
 130 135 140
 Asn Gln Lys Val Ala Val Ile Gly Gly Gly Asn Thr Ala Val Glu Glu
 145 150 155 160
 Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Ile His Arg
 165 170 175
 Arg Asp Gly Phe Arg Ala Glu Lys Ile Leu Ile Lys Arg Leu Met Asp
 180 185 190
 Lys Val Glu Asn Gly Asn Ile Ile Leu His Thr Asn Arg Thr Leu Glu
 195 200 205
 Glu Val Thr Gly Asp Gln Met Gly Val Thr Gly Val Arg Leu Arg Asp
 210 215 220
 Thr Gln Asn Ser Asp Asn Ile Glu Ser Leu Asp Val Ala Gly Leu Phe
 225 230 235 240
 Val Ala Ile Gly His Ser Pro Asn Thr Ala Ile Phe Glu Gly Gln Leu
 245 250 255
 Glu Leu Glu Asn Gly Tyr Ile Lys Val Gln Ser Gly Ile His Gly Asn
 260 265 270
 Ala Thr Gln Thr Ser Ile Pro Gly Val Phe Ala Ala Gly Asp Val Met
 275 280 285
 Asp His Ile Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys Met
 290 295 300
 Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Gly Leu Ala Asp Ala Lys
 305 310 315 320

<210> 208
 <211> 315
 <212> PRT
 <213> Eubacterium acidaminophilum

<400> 208
 Met Glu Asn Val Tyr Asp Leu Ala Ile Ile Gly Ser Gly Pro Ala Gly
 1 5 10 15
 Leu Ala Ala Ala Leu Tyr Gly Ala Arg Ala Lys Met Lys Thr Ile Met
 20 25 30
 Ile Glu Gly Gln Lys Val Gly Gly Gln Ile Val Ile Thr His Glu Val
 35 40 45
 Ala Asn Tyr Pro Gly Ser Val Arg Glu Ala Thr Gly Pro Ser Leu Ile
 50 55 60
 Glu Arg Met Glu Glu Gln Ala Asn Glu Phe Gly Ala Glu Lys Val Met
 65 70 75 80
 Asp Lys Ile Val Asp Val Asp Leu Asp Gly Lys Ile Lys Val Ile Lys
 85 90 95
 Gly Glu Lys Ala Glu Tyr Lys Ala Lys Ser Val Ile Leu Ala Thr Gly
 100 105 110
 Ala Ala Pro Arg Leu Ala Gly Cys Pro Gly Glu Gln Glu Leu Thr Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Thr Cys Asp Ala Asp Phe Phe Glu Asp
 130 135 140
 Met Glu Val Phe Val Val Gly Gly Gly Asp Thr Ala Val Glu Glu Ala

145 150 155 160
 Met Tyr Leu Ala Lys Phe Ala Arg Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Asp Glu Leu Arg Ala Ala Lys Ser Ile Gln Glu Lys Ala Phe Lys Asn
 180 185 190
 Pro Lys Leu Asp Phe Met Trp Asn Ser Ala Ile Glu Glu Ile Lys Gly
 195 200 205
 Asp Gly Ile Val Glu Ser Ala Val Phe Lys Asn Leu Val Thr Gly Glu
 210 215 220
 Thr Thr Glu Tyr Phe Ala Asn Glu Glu Asp Gly Thr Phe Gly Ile Phe
 225 230 235 240
 Val Phe Ile Gly Tyr Ile Pro Lys Ser Asp Val Phe Lys Gly Lys Ile
 245 250 255
 Thr Leu Asp Asp Ala Gly Tyr Ile Ile Thr Asp Asp Asn Met Lys Thr
 260 265 270
 Asn Val Glu Gly Val Phe Ala Ala Gly Asp Ile Arg Val Lys Ser Leu
 275 280 285
 Arg Gln Val Val Thr Ala Cys Ala Asp Gly Ala Ile Ala Ala Thr Gln
 290 295 300
 Ala Glu Lys Tyr Val Glu Ala Asn Phe Glu Glu
 305 310 315

<210> 209
 <211> 318
 <212> PRT
 <213> Haemophilus influenzae

<400> 209
 Met Ser Asp Ile Lys His Ala Lys Leu Leu Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Ile Tyr Ala Arg Ala Asn Leu Lys Pro
 20 25 30
 Val Leu Val Thr Gly Leu Gln Gln Gly Gly Gln Leu Thr Thr Thr Asp
 35 40 45
 Glu Ile Glu Asn Trp Pro Gly Asp Phe Glu Met Thr Thr Gly Ser Gly
 50 55 60
 Leu Met Gln Arg Met Leu Gln His Ala Glu Lys Phe Glu Thr Glu Ile
 65 70 75 80
 Val Phe Asp His Ile Asn Arg Val Asp Leu Ser Ser Arg Pro Phe Lys
 85 90 95
 Leu Phe Gly Asp Val Gln Asn Phe Thr Cys Asp Ala Leu Ile Ile Ala
 100 105 110
 Thr Gly Ala Ser Ala Arg Tyr Ile Gly Leu Pro Ser Glu Glu Asn Tyr
 115 120 125
 Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 130 135 140
 Arg Asn Lys Pro Val Gly Val Ile Gly Gly Gly Asn Thr Ala Val Glu
 145 150 155 160
 Glu Ala Leu Tyr Leu Ala Asn Ile Ala Ser Thr Val His Leu Ile His
 165 170 175
 Arg Arg Asp Ser Phe Arg Ala Glu Lys Ile Leu Ile Asp Arg Leu Tyr
 180 185 190
 Lys Lys Val Glu Glu Gly Lys Ile Val Leu His Thr Asp Arg Thr Leu
 195 200 205
 Asp Glu Val Leu Gly Asp Asn Met Gly Val Thr Gly Leu Arg Leu Ala
 210 215 220
 Asn Thr Lys Thr Gly Glu Lys Glu Glu Leu Lys Leu Asp Gly Leu Phe
 225 230 235 240
 Val Ala Ile Gly His Ser Pro Asn Thr Glu Ile Phe Gln Gly Gln Leu
 245 250 255
 Glu Leu Asn Asn Gly Tyr Ile Val Val Lys Ser Gly Leu Asp Gly Asn
 260 265 270
 Ala Thr Ala Thr Ser Val Glu Gly Val Phe Ala Ala Gly Asp Val Met
 275 280 285
 Asp His Asn Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys Met
 290 295 300

Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Ala Gln Glu Ala
 305 310 315

<210> 210
 <211> 311
 <212> PRT
 <213> Helicobacter pylori

<400> 210
 Met Ile Asp Cys Ala Ile Ile Gly Gly Gly Pro Ala Gly Leu Ser Ala
 1 5 10 15
 Gly Leu Tyr Ala Thr Arg Gly Gly Val Lys Asn Ala Val Leu Phe Glu
 20 25 30
 Lys Gly Met Pro Gly Gly Gln Ile Thr Gly Ser Ser Glu Ile Glu Asn
 35 40 45
 Tyr Pro Gly Val Lys Glu Val Val Ser Gly Leu Asp Phe Met Gln Pro
 50 55 60
 Trp Gln Glu Gln Cys Phe Arg Phe Gly Leu Lys His Glu Met Thr Ala
 65 70 75 80
 Ile Gln Arg Val Ser Lys Lys Gly Ser His Phe Val Ile Leu Ala Glu
 85 90 95
 Asp Gly Lys Thr Phe Glu Ala Lys Ser Val Ile Ile Ala Thr Gly Gly
 100 105 110
 Ser Pro Lys Arg Thr Gly Ile Lys Gly Glu Ser Glu Tyr Trp Gly Lys
 115 120 125
 Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Phe Phe Tyr Lys Asn Lys
 130 135 140
 Glu Val Ala Val Leu Gly Gly Gly Asp Thr Ala Val Glu Glu Ala Ile
 145 150 155 160
 Tyr Leu Ala Asn Ile Cys Lys Lys Val Tyr Leu Ile His Arg Arg Asp
 165 170 175
 Gly Phe Arg Cys Ala Pro Ile Thr Leu Glu His Ala Lys Asn Asn Ser
 180 185 190
 Lys Ile Glu Phe Leu Thr Pro Tyr Val Val Glu Glu Ile Lys Gly Asp
 195 200 205
 Ala Ser Gly Val Ser Ser Leu Ser Ile Lys Asn Thr Ala Thr Asn Glu
 210 215 220
 Lys Arg Glu Leu Val Val Pro Gly Leu Phe Ile Phe Val Gly Tyr Asp
 225 230 235 240
 Val Asn Asn Ala Val Leu Lys Gln Glu Asp Asn Ser Met Leu Cys Glu
 245 250 255
 Cys Asp Glu Tyr Gly Ser Ile Val Val Asp Phe Ser Met Lys Thr Asn
 260 265 270
 Val Gln Gly Leu Phe Ala Ala Gly Asp Ile Arg Ile Phe Ala Pro Lys
 275 280 285
 Gln Val Val Cys Ala Ala Ser Asp Gly Ala Thr Ala Leu Ser Val
 290 295 300
 Ile Ser Tyr Leu Glu His His
 305 310

<210> 211
 <211> 311
 <212> PRT
 <213> Helicobacter pylori

<400> 211
 Met Ile Asp Cys Ala Ile Ile Gly Gly Gly Pro Ala Gly Leu Ser Ala
 1 5 10 15
 Gly Leu Tyr Ala Thr Arg Gly Gly Val Lys Asn Ala Val Leu Phe Glu
 20 25 30
 Lys Gly Met Pro Gly Gly Gln Ile Thr Gly Ser Ser Glu Ile Glu Asn
 35 40 45
 Tyr Pro Gly Val Lys Glu Val Val Ser Gly Leu Asp Phe Met Gln Pro
 50 55 60
 Trp Gln Glu Gln Cys Phe Arg Phe Gly Leu Lys His Glu Met Thr Ala

65	Val	Gln	Arg	Val	Ser	Lys	Lys	Asp	Ser	His	Phe	Val	Ile	Leu	Ala	Glu	80
					85					90					95		
Asp	Gly	Lys	Thr	Phe	Glu	Ala	Lys	Ser	Val	Ile	Ile	Ala	Thr	Gly	Gly		
			100						105					110			
Ser	Pro	Lys	Arg	Thr	Gly	Ile	Lys	Gly	Glu	Ser	Glu	Tyr	Trp	Gly	Lys		
		115					120					125					
Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn	Lys		
	130					135					140						
Glu	Val	Ala	Val	Leu	Gly	Gly	Asp	Thr	Ala	Val	Glu	Glu	Ala	Ile			
145					150				155					160			
Tyr	Leu	Ala	Asn	Ile	Cys	Lys	Lys	Val	Tyr	Leu	Ile	His	Arg	Arg	Asp		
			165						170					175			
Gly	Phe	Arg	Cys	Ala	Pro	Ile	Thr	Leu	Glu	His	Ala	Lys	Asn	Asn	Asp		
			180					185					190				
Lys	Ile	Glu	Phe	Leu	Thr	Pro	Tyr	Val	Val	Glu	Glu	Ile	Lys	Gly	Asp		
		195					200					205					
Ala	Ser	Gly	Val	Ser	Ser	Leu	Ser	Ile	Lys	Asn	Thr	Ala	Thr	Asn	Glu		
		210				215					220						
Lys	Arg	Glu	Leu	Val	Val	Pro	Gly	Phe	Phe	Ile	Phe	Val	Gly	Tyr	Asp		
225					230				235					240			
Val	Asn	Asn	Ala	Val	Leu	Lys	Gln	Glu	Asp	Asn	Ser	Met	Leu	Cys	Lys		
			245					250					255				
Cys	Asp	Glu	Tyr	Gly	Ser	Ile	Val	Val	Asp	Phe	Ser	Met	Lys	Thr	Asn		
		260					265					270					
Val	Gln	Gly	Leu	Phe	Ala	Ala	Gly	Asp	Ile	Arg	Ile	Phe	Ala	Pro	Lys		
		275					280					285					
Gln	Val	Val	Cys	Ala	Ala	Ser	Asp	Gly	Ala	Thr	Ala	Ala	Leu	Ser	Val		
	290					295					300						
Ile	Ser	Tyr	Leu	Glu	His	His											
305					310												

<210> 212
 <211> 319
 <212> PRT
 <213> *Listeria monocytogenes*

<400> 212

Met	Ala	Ser	Glu	Glu	Lys	Ile	Tyr	Asp	Val	Ile	Ile	Ile	Gly	Ala	Gly		
1				5					10					15			
Pro	Ala	Gly	Met	Thr	Ala	Ala	Leu	Tyr	Thr	Ser	Arg	Ala	Asp	Leu	Asp		
			20					25					30				
Thr	Leu	Met	Ile	Glu	Arg	Gly	Val	Pro	Gly	Gly	Gln	Met	Val	Asn	Thr		
		35				40					45						
Ala	Glu	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Asp	Ser	Ile	Leu	Gly	Pro	Asp		
	50					55					60						
Leu	Ser	Asp	Lys	Met	Leu	Ser	Gly	Ala	Lys	Gln	Phe	Gly	Ala	Glu	Tyr		
65				70					75					80			
Ala	Tyr	Gly	Asp	Ile	Lys	Glu	Val	Val	Asp	Gly	Lys	Glu	Phe	Lys	Thr		
			85					90					95				
Val	Thr	Ala	Gly	Ser	Lys	Thr	Tyr	Lys	Ala	Arg	Ala	Ile	Ile	Ile	Ala		
		100						105					110				
Thr	Gly	Ala	Glu	His	Arg	Lys	Leu	Gly	Ala	Ala	Gly	Glu	Glu	Glu	Leu		
		115				120						125					
Ser	Gly	Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe		
	130					135					140						
Lys	Asn	Arg	Glu	Leu	Ile	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu		
145				150					155					160			
Glu	Gly	Thr	Tyr	Leu	Thr	Arg	Tyr	Ala	Asp	Lys	Val	Thr	Ile	Val	His		
			165					170					175				
Arg	Arg	Asp	Lys	Leu	Arg	Ala	Gln	Gln	Ile	Leu	Gln	Asp	Arg	Ala	Phe		
		180					185					190					
Lys	Asp	Glu	Lys	Val	Asp	Phe	Ile	Trp	Asn	Ser	Thr	Val	Glu	Glu	Ile		
	195					200					205						
Val	Gly	Asp	Gly	Lys	Lys	Val	Thr	Gly	Ala	Lys	Leu	Val	Ser	Thr	Val		
	210					215					220						

Asp	Gly	Ser	Glu	Ser	Ile	Met	Pro	Val	Asp	Gly	Val	Phe	Ile	Tyr	Val
225					230					235					240
Gly	Leu	Val	Pro	Leu	Thr	Lys	Ala	Phe	Leu	Asn	Leu	Gly	Ile	Thr	Asp
				245					250					255	
Asp	Glu	Gly	Tyr	Ile	Val	Thr	Asp	Glu	Met	Arg	Thr	Asn	Leu	Pro	
			260					265				270			
Gly	Ile	Phe	Ala	Ala	Gly	Asp	Val	Arg	Ala	Lys	Ser	Leu	Arg	Gln	Ile
		275					280					285			
Val	Thr	Ala	Thr	Gly	Asp	Gly	Gly	Leu	Ala	Gly	Gln	Asn	Ala	Gln	Lys
	290					295					300				
Tyr	Val	Glu	Glu	Leu	Lys	Glu	Ser	Leu	Glu	Ala	Glu	Ala	Ala	Lys	
305					310					315					

<210> 213
 <211> 315
 <212> PRT
 <213> Mycoplasma genitalium

<400> 213															
Met	Leu	Lys	Val	Asn	Ala	Asp	Phe	Leu	Thr	Lys	Asp	Gln	Val	Ile	Tyr
1				5					10					15	
Asp	Leu	Val	Ile	Val	Gly	Ala	Gly	Pro	Ala	Gly	Ile	Ala	Ser	Ala	Ile
			20					25					30		
Tyr	Gly	Lys	Arg	Ala	Asn	Leu	Asn	Leu	Ala	Ile	Ile	Glu	Gly	Asn	Thr
		35					40					45			
Pro	Gly	Gly	Lys	Ile	Val	Lys	Thr	Asn	Ile	Val	Glu	Asn	Tyr	Pro	Gly
		50				55					60				
Phe	Lys	Thr	Ile	Thr	Gly	Pro	Glu	Leu	Gly	Leu	Glu	Met	Tyr	Asn	His
65					70					75					80
Leu	Leu	Ala	Phe	Glu	Pro	Val	Val	Phe	Tyr	Asn	Asn	Leu	Ile	Lys	Ile
				85					90					95	
Asp	His	Leu	Asn	Asp	Thr	Phe	Ile	Leu	Tyr	Leu	Asp	Asn	Lys	Thr	Thr
			100					105					110		
Val	Phe	Ser	Lys	Thr	Val	Ile	Tyr	Ala	Thr	Gly	Met	Glu	Glu	Arg	Lys
		115					120					125			
Leu	Gly	Ile	Glu	Lys	Glu	Asp	Tyr	Phe	Tyr	Gly	Lys	Gly	Ile	Ser	Tyr
	130					135					140				
Cys	Ala	Ile	Cys	Asp	Ala	Ala	Leu	Tyr	Lys	Gly	Lys	Thr	Val	Gly	Val
145					150					155					160
Val	Gly	Gly	Gly	Asn	Ser	Ala	Ile	Gln	Glu	Ala	Ile	Tyr	Leu	Ser	Ser
				165					170					175	
Ile	Ala	Lys	Thr	Val	His	Leu	Ile	His	Arg	Arg	Glu	Val	Phe	Arg	Ser
			180					185					190		
Asp	Ala	Leu	Leu	Val	Glu	Lys	Leu	Lys	Lys	Ile	Ser	Asn	Val	Val	Phe
		195					200					205			
His	Leu	Asn	Ala	Thr	Val	Lys	Gln	Leu	Ile	Gly	Gln	Glu	Lys	Leu	Gln
	210					215					220				
Thr	Val	Lys	Leu	Ala	Ser	Thr	Val	Asp	Lys	Ser	Glu	Ser	Glu	Ile	Ala
	225				230					235					240
Ile	Asp	Cys	Leu	Phe	Pro	Tyr	Ile	Gly	Phe	Glu	Ser	Asn	Asn	Lys	Pro
				245					250					255	
Val	Leu	Asp	Leu	Lys	Leu	Asn	Leu	Asp	Gln	Asn	Gly	Phe	Ile	Leu	Gly
			260					265					270		
Asp	Glu	Asn	Met	Gln	Thr	Asn	Ile	Lys	Gly	Phe	Tyr	Val	Ala	Gly	Asp
		275					280					285			
Cys	Arg	Ser	Lys	Ser	Phe	Arg	Gln	Ile	Ala	Thr	Ala	Ile	Ser	Asp	Gly
	290					295					300				
Val	Thr	Ala	Val	Leu	Lys	Val	Arg	Asp	Asp	Ile					
305					310					315					

<210> 214
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 214
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
 1 5 10 15
 Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
 20 25 30
 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala
 100 105 110
 Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile
 115 120 125
 Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr
 130 135 140
 Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg
 165 170 175
 Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile
 180 185 190
 Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn
 195 200 205
 His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg
 210 215 220
 Leu Arg Asn Thr Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly
 225 230 235 240
 Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp
 245 250 255
 Val Val Asp Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr
 260 265 270
 Thr Ser Thr Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp
 275 280 285
 Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala
 290 295 300
 Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala
 305 310 315 320
 Asn Glu Thr Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr
 325 330 335
 Asp Trp Ser Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile
 340 345 350
 Glu Val Thr Asp Ala Ser Phe Phe Ala Asp Val Leu Ser Ser Asn Lys
 355 360 365
 Pro Val Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met
 370 375 380
 Val Ala Pro Val Leu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu
 385 390 395 400
 Thr Val Ala Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu
 405 410 415
 Phe Gln Val Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln
 420 425 430
 Pro Val Lys Arg Ile Val Gly Ala Lys Gly Lys Ala Ala Leu Leu Arg
 435 440 445
 Asp Leu Ser Asp Val Val Pro Asn Leu Asn
 450 455

<210> 215
 <211> 315
 <212> PRT
 <213> Mycoplasma pneumoniae

<400> 215

Met Leu Lys Val Lys Ser Asp Phe Leu Thr Lys Asp Gln Val Ile Tyr
 1 5 10 15
 Asp Val Ala Ile Val Gly Ala Gly Pro Ala Gly Ile Ala Ala Gly Ile
 20 25 30
 Tyr Gly Lys Arg Ala Asn Leu Asn Leu Ala Ile Ile Glu Gly Ser Thr
 35 40 45
 Pro Gly Gly Lys Val Val Lys Thr Asn Ile Val Glu Asn Tyr Pro Gly
 50 55 60
 Tyr Lys Ser Ile Thr Gly Pro Asp Leu Gly Leu Glu Met Tyr Asn His
 65 70 75 80
 Leu Ile Asp Leu Glu Pro Thr Phe Phe Tyr Ala Asn Leu Ile Lys Leu
 85 90 95
 Asp Lys Ala Ala Asp Thr Phe Ile Leu Tyr Leu Asp Asp Lys Thr Val
 100 105 110
 Val Phe Ala Lys Thr Val Ile Tyr Ala Thr Gly Met Leu Glu Arg Lys
 115 120 125
 Leu Gly Val Ala Lys Glu Asp His Phe Tyr Gly Lys Gly Ile Ser Tyr
 130 135 140
 Cys Ala Ile Cys Asp Gly Ser Leu Tyr Lys Asp Gln Val Val Gly Val
 145 150 155 160
 Val Gly Gly Gly Asn Ser Ala Ile Gln Glu Ala Leu Tyr Leu Ala Ser
 165 170 175
 Met Ala Lys Thr Val His Leu Ile His Arg Arg Glu Gly Phe Arg Ala
 180 185 190
 Asp Glu Thr Ala Leu Asn Lys Leu Arg Asn Leu Pro Asn Val Val Phe
 195 200 205
 His Leu Asn Tyr Thr Val Lys Glu Leu Leu Gly Asn Asn Thr Leu Asn
 210 215 220
 Gly Ile Val Leu Gln Asn Thr Leu Asp His Ser Thr Lys Gln Ile Asp
 225 230 235 240
 Leu Asn Cys Val Phe Pro Tyr Ile Gly Phe Glu Ser Ile Thr Lys Pro
 245 250 255
 Val Glu His Leu Asn Leu Lys Leu Asp Pro Gln Gly Phe Leu Ile Thr
 260 265 270
 Asn Glu Gln Met Glu Thr Ser Leu Lys Gly Leu Phe Ala Ala Gly Asp
 275 280 285
 Cys Arg Ser Lys His Phe Arg Gln Ile Gly Thr Ala Ile Asn Asp Gly
 290 295 300
 Ile Ile Ala Val Leu Thr Ile Arg Asp Val Leu
 305 310 315

<210> 216
 <211> 311
 <212> PRT
 <213> Mycobacterium smegmatis

<400> 216
 Met Ser Thr Ser Gln Thr Val His Asp Val Ile Ile Ile Gly Ser Gly
 1 5 10 15
 Pro Ala Gly Tyr Thr Ala Ala Ile Tyr Ala Ala Arg Ala Gln Leu Lys
 20 25 30
 Pro Leu Val Phe Glu Gly Thr Gln Phe Gly Gly Ala Leu Met Thr Thr
 35 40 45
 Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Glu Gly Ile Thr Gly Pro
 50 55 60
 Glu Leu Met Asp Gln Met Arg Glu Gln Ala Leu Arg Phe Arg Ala Asp
 65 70 75 80
 Leu Arg Met Glu Asp Val Asp Ala Val Gln Leu Glu Gly Pro Val Lys
 85 90 95
 Thr Val Val Val Gly Asp Glu Thr His Gln Ala Arg Ala Val Ile Leu
 100 105 110
 Ala Met Gly Ala Ala Ala Arg His Leu Gly Val Pro Gly Glu Glu Ala
 115 120 125
 Leu Thr Gly Met Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Phe Phe
 130 135 140
 Phe Arg Asp Gln Asp Ile Val Val Val Gly Gly Gly Asp Ser Ala Met

145					150					155				160
Glu	Glu	Ala	Thr	Phe	Leu	Thr	Arg	Phe	Ala	Arg	Ser	Val	Thr	Leu
				165					170					175
His	Arg	Arg	Asp	Glu	Phe	Arg	Ala	Ser	Lys	Ile	Met	Leu	Glu	Arg
			180					185					190	
Arg	Ala	Asn	Glu	Lys	Ile	Thr	Phe	Leu	Thr	Asn	Thr	Glu	Ile	Thr
		195				200						205		
Ile	Glu	Gly	Asp	Pro	Lys	Val	Thr	Gly	Val	Arg	Leu	Arg	Asp	Thr
	210					215					220			
Thr	Gly	Glu	Glu	Ser	Lys	Leu	Asp	Val	Thr	Gly	Val	Phe	Val	Ala
225				230						235				240
Gly	His	Asp	Pro	Arg	Ser	Glu	Leu	Val	Arg	Gly	Gln	Val	Glu	Leu
				245					250					255
Asp	Glu	Gly	Tyr	Val	Lys	Val	Gln	Gly	Arg	Thr	Thr	Tyr	Thr	Ser
		260						265					270	
Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp	His	Thr	Tyr	Arg
	275						280					285		
Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala	Ser	Ile	Asp	Ala
	290					295					300			
Arg	Trp	Leu	Ala	Glu	Gln	Asp								
305					310									

<210> 217
 <211> 335
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 217
 Met Thr Ala Pro Pro Val His Asp Arg Ala His His Pro Val Arg Asp
 1 5 10 15
 Val Ile Val Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr
 20 25 30
 Ala Ala Arg Ala Gln Leu Ala Pro Leu Val Phe Glu Gly Thr Ser Phe
 35 40 45
 Gly Gly Ala Leu Met Thr Thr Thr Asp Val Glu Asn Tyr Pro Gly Phe
 50 55 60
 Arg Asn Gly Ile Thr Gly Pro Glu Leu Met Asp Glu Met Arg Glu Gln
 65 70 75 80
 Ala Leu Arg Phe Gly Ala Asp Leu Arg Met Glu Asp Val Glu Ser Val
 85 90 95
 Ser Leu His Gly Pro Leu Lys Ser Val Val Thr Ala Asp Gly Gln Thr
 100 105 110
 His Arg Ala Arg Ala Val Ile Leu Ala Met Gly Ala Ala Ala Arg Tyr
 115 120 125
 Leu Gln Val Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ser
 130 135 140
 Cys Ala Thr Cys Asp Gly Phe Phe Phe Arg Asp Gln Asp Ile Ala Val
 145 150 155 160
 Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Thr Phe Leu Thr Arg
 165 170 175
 Phe Ala Arg Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala
 180 185 190
 Ser Lys Ile Met Leu Asp Arg Ala Arg Asn Asn Asp Lys Ile Arg Phe
 195 200 205
 Leu Thr Asn His Thr Val Val Ala Val Asp Gly Asp Thr Thr Val Thr
 210 215 220
 Gly Leu Arg Val Arg Asp Thr Asn Thr Gly Ala Glu Thr Thr Leu Pro
 225 230 235 240
 Val Thr Gly Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Gly Leu
 245 250 255
 Val Arg Glu Ala Ile Asp Val Asp Pro Asp Gly Tyr Val Leu Val Gln
 260 265 270
 Gly Arg Thr Thr Ser Thr Ser Leu Pro Gly Val Phe Ala Ala Gly Asp
 275 280 285
 Leu Val Asp Arg Thr Tyr Arg Gln Ala Val Thr Ala Ala Gly Ser Gly
 290 295 300

Cys Ala Ala Ala Ile Asp Ala Glu Arg Trp Leu Ala Glu His Ala Ala
 305 310 315 320
 Thr Gly Glu Ala Asp Ser Thr Asp Ala Leu Ile Gly Ala Gln Arg
 325 330 335

<210> 218
 <211> 334
 <212> PRT
 <213> Neurospora crassa

<400> 218
 Met His Ser Lys Val Val Ile Ile Gly Ser Gly Pro Ala Ala His Thr
 1 5 10 15
 Ala Ala Ile Tyr Leu Ala Arg Ala Glu Leu Lys Pro Val Leu Tyr Glu
 20 25 30
 Gly Phe Met Ala Asn Gly Ile Ala Ala Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Thr Glu Ile Glu Asn Phe Pro Gly Phe Pro Asp Gly Ile Met Gly Gln
 50 55 60
 Glu Leu Met Asp Lys Met Lys Ala Gln Ser Glu Arg Phe Gly Thr Gln
 65 70 75 80
 Ile Ile Ser Glu Thr Val Ala Lys Val Asp Leu Ser Ala Arg Pro Phe
 85 90 95
 Lys Tyr Ala Thr Glu Trp Ser Pro Glu Glu Tyr His Thr Ala Asp Ser
 100 105 110
 Ile Ile Leu Ala Thr Gly Ala Ser Ala Arg Arg Leu His Leu Pro Gly
 115 120 125
 Glu Glu Lys Tyr Trp Gln Asn Gly Ile Ser Ala Cys Ala Val Cys Asp
 130 135 140
 Gly Ala Val Pro Ile Phe Arg Asn Lys His Leu Val Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ser Ala Ala Glu Glu Ala Met Tyr Leu Thr Lys Tyr Gly Ser
 165 170 175
 His Val Thr Val Leu Val Arg Lys Asp Lys Leu Arg Ala Ser Ser Ile
 180 185 190
 Met Ala His Arg Leu Leu Asn His Glu Lys Val Thr Val Arg Phe Asn
 195 200 205
 Thr Val Gly Val Glu Val Lys Gly Asp Asp Lys Gly Leu Met Ser His
 210 215 220
 Leu Val Val Lys Asp Val Thr Thr Gly Lys Glu Glu Thr Leu Glu Ala
 225 230 235 240
 Asn Gly Leu Phe Tyr Ala Ile Gly His Asp Pro Ala Thr Ala Leu Val
 245 250 255
 Lys Gly Gln Leu Glu Thr Asp Ala Asp Gly Tyr Val Val Thr Lys Pro
 260 265 270
 Gly Thr Thr Leu Thr Ser Val Glu Gly Val Phe Ala Ala Gly Asp Val
 275 280 285
 Gln Asp Lys Arg Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys
 290 295 300
 Met Ala Ala Leu Asp Ala Glu Lys Phe Leu Ser Glu His Glu Glu Thr
 305 310 315 320
 Pro Ala Glu His Arg Asp Thr Ser Ala Val Gln Gly Asn Leu
 325 330

<210> 219
 <211> 333
 <212> PRT
 <213> Penicillium chrysogenum

<400> 219
 Val His Ser Lys Val Val Ile Ile Gly Ser Gly Ala Gly Ala His Thr
 1 5 10 15
 Ala Ala Ile Tyr Leu Ser Arg Ala Glu Leu Gln Pro Val Leu Tyr Glu
 20 25 30
 Gly Met Leu Ala Asn Gly Thr Ala Ala Gly Gly Gln Leu Thr Thr Thr

Arg	Asn	Ser	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Gln	Asp	Arg	Leu	Phe	Lys
			180					185					190		
Asn	Pro	Lys	Ile	Ser	Val	Ile	Trp	Asp	His	Ile	Ile	Asp	Glu	Ile	Val
		195					200					205			
Gly	Ser	Asn	Lys	Pro	Lys	Ala	Val	Thr	Gly	Val	Lys	Ile	Gln	Asn	Val
	210					215					220				
Tyr	Thr	Asn	Glu	Ile	Asn	Leu	Val	Asn	Cys	Ser	Gly	Val	Phe	Ile	Ala
	225				230					235					240
Ile	Gly	His	Ala	Pro	Asn	Thr	Ala	Leu	Phe	Lys	Gly	Gln	Ile	Ala	Ile
			245						250					255	
Asp	Asp	Asp	Asn	Tyr	Ile	Val	Thr	Gln	Ser	Gly	Ser	Thr	Arg	Thr	Asn
			260					265					270		
Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Ile	Tyr	Arg
		275					280					285			
Gln	Ala	Val	Thr	Ala	Ala	Ala	Ser	Gly	Cys	Met	Ala	Ala	Leu	Glu	Val
	290					295					300				
Ala	Lys	Phe	Leu	Asn	Lys										
305					310										

<210> 221
 <211> 322
 <212> PRT
 <213> Schizosaccharomyces pombe

<400>	221														
Met	Thr	His	Asn	Lys	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	His
1				5					10					15	
Thr	Ala	Ala	Ile	Tyr	Leu	Ala	Arg	Gly	Glu	Leu	Lys	Pro	Val	Met	Tyr
			20					25					30		
Glu	Gly	Met	Leu	Ala	Asn	Gly	Ile	Ala	Ala	Gly	Gly	Gln	Leu	Thr	Thr
		35				40						45			
Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Ile	Asn	Gly
	50					55					60				
Thr	Thr	Leu	Thr	Glu	Asn	Phe	Arg	Ala	Gln	Ser	Leu	Arg	Phe	Gly	Thr
	65				70					75				80	
Glu	Ile	Ile	Thr	Glu	Thr	Val	Ser	Lys	Leu	Asp	Leu	Ser	Ser	Arg	Pro
				85					90					95	
Phe	Lys	Tyr	Trp	Leu	Glu	Gly	Ala	Glu	Glu	Glu	Glu	Pro	His	Thr	Ala
			100					105					110		
Asp	Ser	Val	Ile	Leu	Ala	Thr	Gly	Ala	Ser	Ala	Arg	Arg	Leu	His	Ile
		115					120					125			
Thr	Gly	Glu	Asp	Thr	Tyr	Trp	Gln	Ala	Gly	Ile	Ser	Ala	Cys	Ala	Val
	130					135					140				
Cys	Asp	Gly	Ala	Val	Pro	Ile	Tyr	Arg	Asn	Lys	Pro	Leu	Ala	Val	Val
	145				150					155				160	
Gly	Gly	Gly	Asp	Ser	Ala	Ala	Glu	Glu	Ala	Gln	Phe	Leu	Thr	Lys	Tyr
				165					170					175	
Gly	Ser	Lys	Val	Tyr	Val	Leu	Val	Arg	Arg	Asp	Lys	Leu	Arg	Ala	Ser
			180					185					190		
Pro	Ile	Met	Ala	Lys	Arg	Leu	Leu	Ala	Asn	Pro	Lys	Val	Glu	Val	Leu
		195					200					205			
Trp	Asn	Thr	Val	Ala	Glu	Glu	Ala	Gln	Gly	Asp	Gly	Lys	Leu	Leu	Asn
	210				215						220				
Asn	Leu	Arg	Ile	Lys	Asn	Thr	Asn	Thr	Asn	Glu	Val	Ser	Asp	Leu	Gln
	225				230					235					240
Val	Asn	Gly	Leu	Phe	Tyr	Ala	Ile	Gly	His	Ile	Pro	Ala	Thr	Lys	Leu
				245					250					255	
Val	Ala	Glu	Gln	Ile	Glu	Leu	Asp	Glu	Ala	Gly	Tyr	Ile	Lys	Thr	Ile
			260					265					270		
Asn	Gly	Thr	Pro	Arg	Thr	Ser	Ile	Pro	Gly	Phe	Phe	Ala	Ala	Gly	Asp
		275					280					285			
Val	Gln	Asp	Lys	Val	Phe	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly
	290					295					300				
Cys	Gln	Ala	Ala	Leu	Leu	Ala	Met	His	Tyr	Leu	Glu	Glu	Leu	Glu	Asp
	305				310					315					320
Thr	Asp														

<210> 222
 <211> 321
 <212> PRT
 <213> Streptomyces clavuligerus

<400> 222
 Ser Asp Val Arg Asn Val Ile Ile Ile Gly Ser Gly Pro Ala Gly Tyr
 1 5 10 15
 Thr Ala Ala Leu Tyr Thr Ala Arg Ala Ser Leu Gln Pro Leu Val Phe
 20 25 30
 Glu Gly Ala Val Thr Ala Gly Gly Ala Leu Met Asn Thr Thr Asp Val
 35 40 45
 Glu Asn Phe Pro Gly Phe Arg Asp Gly Ile Met Gly Pro Asp Leu Met
 50 55 60
 Asp Asn Met Arg Ala Gln Ala Glu Arg Phe Gly Ala Glu Leu Ile Pro
 65 70 75 80
 Asp Asp Val Val Ser Val Asp Leu Thr Gly Asp Ile Lys Thr Val Thr
 85 90 95
 Asp Ser Ala Gly Thr Val His Arg Ala Lys Ala Val Ile Val Thr Thr
 100 105 110
 Gly Ser Gln His Arg Lys Leu Gly Leu Pro Arg Glu Asp Ala Leu Ser
 115 120 125
 Gly Arg Gly Val Ser Trp Cys Ala Thr Cys Asp Gly Phe Phe Phe Lys
 130 135 140
 Asp Gln Asp Ile Val Val Val Gly Gly Gly Asp Thr Ala Met Glu Glu
 145 150 155 160
 Ala Thr Phe Leu Ser Arg Phe Ala Lys Ser Val Thr Ile Val His Arg
 165 170 175
 Arg Asp Ser Leu Arg Ala Ser Lys Ala Met Gln Asp Arg Ala Phe Ala
 180 185 190
 Asp Pro Lys Ile Ser Phe Ala Trp Asn Ser Glu Val Ala Thr Ile His
 195 200 205
 Gly Glu Gln Lys Leu Thr Gly Leu Thr Leu Arg Asp Thr Lys Thr Gly
 210 215 220
 Glu Thr Arg Glu Leu Ala Thr Gly Leu Phe Ile Ala Val Gly His
 225 230 235 240
 Asp Pro Arg Thr Glu Leu Phe Lys Gly Gln Leu Asp Leu Asp Asp Glu
 245 250 255
 Gly Tyr Leu Lys Val Ala Ser Pro Ser Thr Arg Thr Asn Leu Thr Gly
 260 265 270
 Val Phe Ala Ala Gly Asp Val Val Asp His Thr Tyr Arg Gln Ala Ile
 275 280 285
 Thr Ala Ala Gly Thr Gly Cys Ser Ala Ala Leu Asp Ala Glu Arg Tyr
 290 295 300
 Leu Ala Ala Leu Ala Asp Ser Glu Gln Ile Ala Glu Pro Ala Pro Ala
 305 310 315 320
 Val

<210> 223
 <211> 321
 <212> PRT
 <213> Streptomyces coelicolor

<400> 223
 Ser Asp Val Arg Asn Val Ile Ile Ile Gly Ser Gly Pro Ala Gly Tyr
 1 5 10 15
 Thr Ala Ala Leu Tyr Thr Ala Arg Ala Ser Leu Lys Pro Leu Val Phe
 20 25 30
 Glu Gly Ala Val Thr Ala Gly Gly Ala Leu Met Asn Thr Thr Glu Val
 35 40 45
 Glu Asn Phe Pro Gly Phe Gln Asp Gly Ile Met Gly Pro Glu Leu Met
 50 55 60

Asp	Asn	Met	Arg	Ala	Gln	Ala	Glu	Arg	Phe	Gly	Ala	Glu	Leu	Ile	Pro
65					70					75					80
Asp	Asp	Val	Val	Ala	Val	Asp	Leu	Ser	Gly	Glu	Ile	Lys	Thr	Val	Thr
				85					90					95	
Asp	Thr	Ala	Gly	Thr	Val	His	Arg	Ala	Lys	Ala	Val	Ile	Val	Thr	Thr
			100					105					110		
Gly	Ser	Gln	His	Arg	Lys	Leu	Gly	Leu	Pro	Asn	Glu	Asp	Ala	Leu	Ser
		115					120					125			
Gly	Arg	Gly	Val	Ser	Trp	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Phe	Lys
	130					135					140				
Asp	Gln	Asp	Ile	Ala	Val	Ile	Gly	Gly	Gly	Asp	Thr	Ala	Met	Glu	Glu
145					150					155					160
Ala	Thr	Phe	Leu	Ser	Arg	Phe	Ala	Lys	Ser	Val	Thr	Ile	Val	His	Arg
				165					170					175	
Arg	Asp	Thr	Leu	Arg	Ala	Ser	Lys	Ala	Met	Gln	Glu	Arg	Ala	Phe	Ala
			180					185						190	
Asp	Pro	Lys	Ile	Ser	Phe	Val	Trp	Asp	Ser	Glu	Val	Ala	Glu	Val	Gln
	195						200					205			
Gly	Asp	Gln	Lys	Leu	Ala	Gly	Leu	Lys	Leu	Arg	Asn	Val	Lys	Thr	Gly
	210					215					220				
Glu	Leu	Ser	Asp	Leu	Pro	Val	Thr	Gly	Leu	Phe	Ile	Ala	Ile	Gly	His
225					230					235					240
Asp	Pro	Arg	Thr	Glu	Leu	Phe	Lys	Gly	Gln	Leu	Asp	Leu	Asp	Pro	Glu
				245					250					255	
Gly	Tyr	Leu	Lys	Val	Asp	Ala	Pro	Ser	Thr	Arg	Thr	Asn	Leu	Thr	Gly
			260					265					270		
Val	Phe	Gly	Ala	Gly	Asp	Val	Val	Asp	His	Thr	Tyr	Arg	Gln	Ala	Ile
		275					280					285			
Thr	Ala	Ala	Gly	Thr	Gly	Cys	Ser	Ala	Ala	Val	Asp	Ala	Glu	Pro	Phe
	290					295					300				
Leu	Ala	Ala	Leu	Ser	Asp	Glu	Asp	Lys	Ala	Glu	Pro	Glu	Lys	Thr	Ala
305					310					315					320
Val															

<210> 224
 <211> 307
 <212> PRT
 <213> Treponema pallidum

<400> 224

Met	Glu	Thr	Asp	Tyr	Asp	Val	Ile	Ile	Val	Gly	Ala	Gly	Ala	Ala	Gly
1				5					10					15	
Leu	Ser	Ala	Ala	Gln	Tyr	Ala	Cys	Arg	Ala	Asn	Leu	Arg	Thr	Leu	Val
			20					25					30		
Ile	Glu	Ser	Lys	Ala	His	Gly	Gly	Gln	Ala	Leu	Leu	Ile	Asp	Ser	Leu
		35					40					45			
Glu	Asn	Tyr	Pro	Gly	Tyr	Ala	Thr	Pro	Ile	Ser	Gly	Phe	Glu	Tyr	Ala
	50					55					60				
Glu	Asn	Met	Lys	Lys	Gln	Ala	Val	Ala	Phe	Gly	Ala	Gln	Ile	Ala	Tyr
65					70				75						80
Glu	Glu	Val	Thr	Thr	Ile	Gly	Lys	Arg	Asp	Ser	Val	Phe	His	Ile	Thr
				85					90					95	
Thr	Gly	Thr	Gly	Ala	Tyr	Thr	Ala	Met	Ser	Val	Ile	Leu	Ala	Thr	Gly
			100					105					110		
Ala	Glu	His	Arg	Lys	Met	Gly	Ile	Pro	Gly	Glu	Ser	Glu	Phe	Leu	Gly
		115					120					125			
Arg	Gly	Val	Ser	Tyr	Cys	Ala	Thr	Cys	Asp	Gly	Pro	Phe	Phe	Arg	Asn
	130					135					140				
Lys	His	Val	Val	Val	Ile	Gly	Gly	Gly	Asp	Ala	Ala	Cys	Asp	Glu	Ser
145					150				155						160
Leu	Val	Leu	Ser	Arg	Leu	Thr	Asp	Arg	Val	Thr	Met	Ile	His	Arg	Arg
				165					170					175	
Asp	Thr	Leu	Arg	Ala	Gln	Lys	Ala	Ile	Ala	Glu	Arg	Thr	Leu	Lys	Asn
			180					185					190		
Pro	His	Ile	Ala	Val	Gln	Trp	Asn	Thr	Thr	Leu	Glu	Ala	Val	Arg	Gly

Ser	Gly	Leu	Phe	Tyr	Ala	Ile	Gly	His	Thr	Pro	Ala	Thr	Lys	Ile	Val
				245					250					255	
Ala	Gly	Gln	Val	Asp	Thr	Asp	Glu	Ala	Gly	Tyr	Ile	Lys	Thr	Val	Pro
			260					265					270		
Gly	Ser	Ser	Leu	Thr	Ser	Val	Pro	Gly	Phe	Phe	Ala	Ala	Gly	Asp	Val
		275					280					285			
Gln	Asp	Ser	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly	Cys
	290					295					300				
Met	Ala	Ala	Leu	Asp	Ala	Glu	Lys	Tyr	Leu	Thr	Ser	Leu	Glu		
305					310					315					

<210> 227

<211> 342

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 227

Met	Ile	Lys	His	Ile	Val	Ser	Pro	Phe	Arg	Thr	Asn	Phe	Val	Gly	Ile
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Ser	Lys	Ser	Val	Leu	Ser	Arg	Met	Ile	His	His	Lys	Val	Thr	Ile	Ile
			20					25				30			
Gly	Ser	Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Leu	Ala	Arg	Ala
		35					40					45			
Glu	Met	Lys	Pro	Thr	Leu	Tyr	Glu	Gly	Met	Met	Ala	Asn	Gly	Ile	Ala
	50					55					60				
Ala	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Ile	Glu	Asn	Phe	Pro	Gly
65				70					75					80	
Phe	Pro	Glu	Ser	Leu	Ser	Gly	Ser	Glu	Leu	Met	Glu	Arg	Met	Arg	Lys
			85					90					95		
Gln	Ser	Ala	Lys	Phe	Gly	Thr	Asn	Ile	Ile	Thr	Glu	Thr	Val	Ser	Lys
			100				105						110		
Val	Asp	Leu	Ser	Ser	Lys	Pro	Phe	Arg	Leu	Trp	Thr	Glu	Phe	Asn	Glu
	115						120					125			
Asp	Ala	Glu	Pro	Val	Thr	Thr	Asp	Ala	Ile	Ile	Leu	Ala	Thr	Gly	Ala
	130					135					140				
Ser	Ala	Lys	Arg	Met	His	Leu	Pro	Gly	Glu	Glu	Thr	Tyr	Trp	Gln	Gln
145				150					155					160	
Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Val	Pro	Ile	Phe	Arg
			165					170						175	
Asn	Lys	Pro	Leu	Ala	Val	Ile	Gly	Gly	Asp	Ser	Ala	Cys	Glu	Glu	
		180					185					190			
Ala	Glu	Phe	Leu	Thr	Lys	Tyr	Ala	Ser	Lys	Val	Tyr	Ile	Leu	Val	Arg
	195						200					205			
Lys	Asp	His	Phe	Arg	Ala	Ser	Val	Ile	Met	Gln	Arg	Arg	Ile	Glu	Lys
	210				215						220				
Asn	Pro	Asn	Ile	Ile	Val	Leu	Phe	Asn	Thr	Val	Ala	Leu	Glu	Ala	Lys
225				230					235					240	
Gly	Asp	Gly	Lys	Leu	Leu	Asn	Met	Leu	Arg	Ile	Lys	Asn	Thr	Lys	Ser
			245					250						255	
Asn	Val	Glu	Asn	Asp	Leu	Glu	Val	Asn	Gly	Leu	Phe	Tyr	Ala	Ile	Gly
		260					265						270		
His	Ser	Pro	Ala	Thr	Asp	Ile	Val	Lys	Gly	Gln	Val	Asp	Glu	Glu	Glu
	275				280							285			
Thr	Gly	Tyr	Ile	Lys	Thr	Val	Pro	Gly	Ser	Ser	Leu	Thr	Ser	Val	Pro
	290				295						300				
Gly	Phe	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Ser	Arg	Tyr	Arg	Gln	Ala
305				310					315					320	
Val	Thr	Ser	Ala	Gly	Ser	Gly	Cys	Ile	Ala	Ala	Leu	Asp	Ala	Glu	Arg
			325					330						335	
Tyr	Leu	Ser	Ala	Gln	Glu										
			340												

<210> 228

<211> 499

<212> PRT

<213> Bos taurus

<400> 228

Met	Asn	Gly	Ser	Lys	Asp	Leu	Pro	Glu	Pro	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5					10					15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
		20						25					30		
Lys	Tyr	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
50						55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75				80	
Arg	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Asn	Val	Glu	Glu	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Glu	Arg	Met	Thr	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
				100				105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Thr	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Glu	Phe	Val	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
					135						140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165				170						175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
		210				215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Gln	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Ile	Ala	Lys
			260					265					270		
Ser	Thr	Asp	Ser	Asp	Gln	Thr	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Leu
		275					280					285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Asn
		290				295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Glu
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
				340				345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ser	Cys	Gly
		370				375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Val	Glu
385					390					395					400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Val	Val	Cys	Asn	Ile	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Asp	Gln
		450				455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asn	Ile	Leu	Gln	Thr	Gly
				485					490					495	
Cys	Cys	Gly													

<210> 229
 <211> 523
 <212> PRT
 <213> Caenorhabditis elegans

<400> 229
 Met Tyr Ile Lys Gly Asn Ala Val Gly Gly Leu Lys Glu Leu Lys Ala
 1 5 10 15
 Leu Lys Gln Asp Tyr Leu Lys Glu Trp Leu Arg Asp His Thr Tyr Asp
 20 25 30
 Leu Ile Val Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu
 35 40 45
 Ala Ser Arg Leu Gly Lys Lys Val Ala Cys Leu Asp Phe Val Lys Pro
 50 55 60
 Ser Pro Gln Gly Thr Ser Trp Gly Leu Gly Gly Thr Cys Val Asn Val
 65 70 75 80
 Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ser Leu Leu Gly His
 85 90 95
 Ser Ile His Asp Ala Lys Lys Tyr Gly Trp Lys Leu Pro Glu Gly Lys
 100 105 110
 Val Glu His Gln Trp Asn His Leu Arg Asp Ser Val Gln Asp His Ile
 115 120 125
 Ala Ser Leu Asn Trp Gly Tyr Arg Val Gln Leu Arg Glu Lys Thr Val
 130 135 140
 Thr Tyr Ile Asn Ser Tyr Gly Glu Phe Thr Gly Pro Phe Glu Ile Ser
 145 150 155 160
 Ala Thr Asn Lys Lys Lys Lys Val Glu Lys Leu Thr Ala Asp Arg Phe
 165 170 175
 Leu Ile Ser Thr Gly Leu Arg Pro Lys Tyr Pro Glu Ile Pro Gly Val
 180 185 190
 Lys Glu Tyr Thr Ile Thr Ser Asp Asp Leu Phe Gln Leu Pro Tyr Ser
 195 200 205
 Pro Gly Lys Thr Leu Cys Val Gly Ala Ser Tyr Val Ser Leu Glu Cys
 210 215 220
 Ala Gly Phe Leu His Gly Phe Gly Phe Asp Val Thr Val Met Val Arg
 225 230 235 240
 Ser Ile Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Glu Arg Ile Arg
 245 250 255
 Lys His Met Ile Ala Tyr Gly Met Lys Phe Glu Ala Gly Val Pro Thr
 260 265 270
 Arg Ile Glu Gln Ile Asp Glu Lys Thr Asp Glu Lys Ala Gly Lys Tyr
 275 280 285
 Arg Val Phe Trp Pro Lys Lys Asn Glu Glu Thr Gly Glu Met Gln Glu
 290 295 300
 Val Ser Glu Glu Tyr Asn Thr Ile Leu Met Ala Ile Gly Arg Glu Ala
 305 310 315 320
 Val Thr Asp Asp Val Gly Leu Thr Thr Ile Gly Val Glu Arg Ala Lys
 325 330 335
 Ser Lys Lys Val Leu Gly Arg Arg Glu Gln Ser Thr Thr Ile Pro Trp
 340 345 350
 Val Tyr Ala Ile Gly Asp Val Leu Glu Gly Thr Pro Glu Leu Thr Pro
 355 360 365
 Val Ala Ile Gln Ala Gly Arg Val Leu Met Arg Arg Ile Phe Asp Gly
 370 375 380
 Ala Asn Glu Leu Thr Glu Tyr Asp Gln Ile Pro Thr Thr Val Phe Thr
 385 390 395 400
 Pro Leu Glu Tyr Gly Cys Cys Gly Leu Ser Glu Glu Asp Ala Met Met
 405 410 415
 Lys Tyr Gly Lys Asp Asn Ile Ile Ile Tyr His Asn Val Phe Asn Pro
 420 425 430
 Leu Glu Tyr Thr Ile Ser Glu Arg Met Asp Lys Asp His Cys Tyr Leu
 435 440 445
 Lys Met Ile Cys Leu Arg Asn Glu Glu Glu Lys Val Val Gly Phe His
 450 460
 Ile Leu Thr Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Gly Ile Ala
 465 470 475 480

Leu	Lys	Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile
			485						490					495	
His	Pro	Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys
			500					505					510		
Glu	Gly	Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys					
		515					520								

<210> 230
 <211> 497
 <212> PRT
 <213> Homo sapiens

<400> 230

Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5					10					15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
		20						25					30		
Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
	50					55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Gly	Gln	Ala	Leu	
	65				70					75				80	
Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	Thr	Val	Lys	His
			85						90					95	
Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115				120						125			
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130				135						140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Ser	Phe	Leu	Ile	Ala
	145				150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
			165					170						175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Gly	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
	225				230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
			245						250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
		260						265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
		275				280						285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
	290					295						300			
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
	305				310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
			325						330					335	
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
	355					360						365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
	385				390					395					400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
			405						410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn

[illegible]

<400>	231															
Met	Cys	Lys	Asp	Lys	Asn	Glu	Lys	Lys	Asn	Tyr	Glu	His	Val	Asn	Ala	
1				5					10					15		
Asn	Glu	Lys	Asn	Gly	Tyr	Leu	Ala	Ser	Glu	Lys	Asn	Glu	Leu	Thr	Lys	
			20					25					30			
Asn	Lys	Val	Glu	Glu	His	Thr	Tyr	Asp	Tyr	Asp	Tyr	Val	Val	Ile	Gly	
		35				40						45				
Gly	Gly	Pro	Gly	Gly	Met	Ala	Ser	Ala	Lys	Glu	Ala	Ala	Ala	His	Gly	
	50					55					60					
Ala	Arg	Val	Leu	Leu	Phe	Asp	Tyr	Val	Lys	Pro	Ser	Ser	Gln	Gly	Thr	
65					70					75				80		
Lys	Trp	Gly	Ile	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Val	Pro	Lys	
				85					90					95		
Lys	Leu	Met	His	Tyr	Ala	Gly	His	Met	Gly	Ser	Ile	Phe	Lys	Leu	Asp	
			100					105					110			
Ser	Lys	Ala	Tyr	Gly	Trp	Lys	Phe	Asp	Asn	Leu	Lys	His	Asp	Trp	Lys	
		115					120					125				
Lys	Leu	Val	Thr	Thr	Val	Gln	Ser	His	Ile	Arg	Ser	Leu	Asn	Phe	Ser	
	130					135					140					
Tyr	Met	Thr	Gly	Leu	Arg	Ser	Ser	Lys	Val	Lys	Tyr	Ile	Asn	Gly	Leu	
145					150					155				160		
Ala	Lys	Leu	Lys	Asp	Lys	Asn	Thr	Val	Ser	Tyr	Tyr	Leu	Lys	Gly	Asp	
				165					170					175		
Leu	Ser	Lys	Glu	Glu	Thr	Val	Thr	Gly	Lys	Tyr	Ile	Leu	Ile	Ala	Thr	
			180					185					190			
Gly	Cys	Arg	Pro	His	Ile	Pro	Asp	Asp	Val	Glu	Gly	Ala	Lys	Glu	Leu	
		195					200					205				
Ser	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Ser	Leu	Lys	Lys	Asp	Pro	Gly	Lys	
	210					215					220					
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ser	Gly	Phe	
225					230					235					240	
Leu	Asn	Ser	Leu	Gly	Tyr	Asp	Val	Thr	Val	Ala	Val	Arg	Ser	Ile	Val	
				245					250					255		
Leu	Arg	Gly	Phe	Asp	Gln	Gln	Cys	Ala	Val	Lys	Val	Lys	Leu	Tyr	Met	
			260					265					270			
Glu	Glu	Gln	Gly	Val	Met	Phe	Lys	Asn	Gly	Ile	Leu	Pro	Lys	Lys	Leu	
		275					280					285				
Thr	Lys	Met	Asp	Asp	Lys	Ile	Leu	Val	Glu	Phe	Ser	Asp	Lys	Thr	Ser	
	290					295					300					
Glu	Leu	Tyr	Asp	Thr	Val	Leu	Tyr	Ala	Ile	Gly	Arg	Lys	Gly	Asp	Ile	
305					310					315				320		
Asp	Gly	Leu	Asn	Leu	Glu	Ser	Leu	Asn	Met	Asn	Val	Asn	Lys	Ser	Asn	
				325					330		</					

Asp	Glu	Ile	Met	Asp	Tyr	Ser	Tyr	Ile	Pro	Thr	Ser	Ile	Tyr	Thr	Pro
385					390					395					400
Ile	Glu	Tyr	Gly	Ala	Cys	Gly	Tyr	Ser	Glu	Glu	Lys	Ala	Tyr	Glu	Leu
				405					410					415	
Tyr	Gly	Lys	Ser	Asn	Val	Glu	Val	Phe	Leu	Gln	Glu	Phe	Asn	Asn	Leu
			420					425					430		
Glu	Ile	Ser	Ala	Val	His	Arg	Gln	Lys	His	Ile	Arg	Ala	Gln	Lys	Asp
		435					440					445			
Glu	Tyr	Asp	Leu	Asp	Val	Ser	Ser	Thr	Cys	Leu	Ala	Lys	Leu	Val	Cys
	450					455					460				
Leu	Lys	Asn	Glu	Asp	Asn	Arg	Val	Ile	Gly	Phe	His	Tyr	Val	Gly	Pro
465					470					475					480
Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Met	Ala	Leu	Ala	Leu	Arg	Leu	Lys
				485					490					495	
Val	Lys	Lys	Lys	Asp	Phe	Asp	Asn	Cys	Ile	Gly	Ile	His	Pro	Thr	Asp
			500					505					510		
Ala	Glu	Ser	Phe	Met	Asn	Leu	Phe	Val	Thr	Ile	Ser	Ser	Gly	Leu	Ser
	515						520					525			
Tyr	Ala	Ala	Lys	Gly	Gly	Cys	Gly	Gly	Gly	Lys	Cys	Gly			
	530					535					540				

<210> 232
 <211> 535
 <212> PRT
 <213> Arabidopsis thaliana

<400> 232															
Met	Ala	Ala	Ser	Pro	Lys	Ile	Gly	Ile	Gly	Ile	Ala	Ser	Val	Ser	Ser
1				5					10					15	
Pro	His	Arg	Val	Ser	Ala	Ala	Ser	Ser	Ala	Leu	Ser	Pro	Pro	Pro	His
			20					25					30		
Leu	Phe	Phe	Leu	Thr	Thr	Thr	Thr	Thr	Thr	Arg	His	Gly	Gly	Ser	Tyr
		35					40					45			
Leu	Leu	Arg	Gln	Pro	Thr	Arg	Thr	Arg	Ser	Ser	Asp	Ser	Leu	Arg	Leu
	50				55						60				
Arg	Val	Ser	Ala	Thr	Ala	Asn	Ser	Pro	Ser	Ser	Ser	Ser	Ser	Gly	Gly
65				70					75						80
Glu	Ile	Ile	Glu	Asn	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr
				85					90					95	
Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro	Val	Val	Phe
			100					105					110		
Glu	Gly	Tyr	Gln	Met	Gly	Gly	Val	Pro	Gly	Gly	Gln	Leu	Met	Thr	Thr
		115					120					125			
Thr	Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Ile	Thr	Gly	Pro
	130					135				140					
Asp	Leu	Met	Glu	Lys	Met	Arg	Lys	Gln	Ala	Glu	Arg	Trp	Gly	Ala	Glu
145				150					155						160
Leu	Tyr	Pro	Glu	Asp	Val	Glu	Ser	Leu	Ser	Val	Thr	Thr	Ala	Pro	Phe
				165					170					175	
Thr	Val	Gln	Thr	Ser	Glu	Arg	Lys	Val	Lys	Cys	His	Ser	Ile	Ile	Tyr
			180					185					190		
Ala	Thr	Gly	Ala	Thr	Ala	Arg	Arg	Leu	Arg	Leu	Pro	Arg	Glu	Glu	Glu
		195				200						205			
Phe	Trp	Ser	Arg	Gly	Ile	Ser	Ala	Cys	Ala	Ile	Cys	Asp	Gly	Ala	Ser
	210					215					220				
Pro	Leu	Phe	Lys	Gly	Gln	Val	Leu	Ala	Val	Val	Gly	Gly	Gly	Asp	Thr
225				230					235						240
Ala	Thr	Glu	Glu	Ala	Leu	Tyr	Leu	Thr	Lys	Tyr	Ala	Arg	His	Val	His
				245					250					255	
Leu	Leu	Val	Arg	Arg	Asp	Gln	Leu	Arg	Ala	Ser	Lys	Ala	Met	Gln	Asp
			260					265					270		
Arg	Val	Ile	Asn	Asn	Pro	Asn	Ile	Thr	Val	His	Tyr	Asn	Thr	Glu	Thr
		275					280					285			
Val	Asp	Val	Leu	Ser	Asn	Thr	Lys	Gly	Gln	Met	Ser	Gly	Ile	Leu	Leu
	290					295					300				
Arg	Arg	Leu	Asp	Thr	Gly	Glu	Glu	Thr	Glu	Leu	Glu	Ala	Lys	Gly	Leu

305 310 315 320
 Phe Tyr Gly Ile Gly His Ser Pro Asn Ser Gln Leu Leu Glu Gly Gln
 325 330 335
 Val Glu Leu Asp Ser Ser Gly Tyr Val Leu Val Arg Glu Gly Thr Ser
 340 345 350
 Asn Thr Ser Val Glu Gly Val Phe Ala Ala Gly Asp Val Gln Asp His
 355 360 365
 Glu Trp Arg Gln Ala Val Thr Ala Ala Gly Ser Gly Cys Ile Ala Ala
 370 375 380
 Leu Ser Ala Glu Arg Tyr Leu Thr Ser Asn Asn Leu Leu Val Glu Phe
 385 390 395 400
 His Gln Pro Gln Thr Glu Glu Ala Lys Lys Glu Phe Thr Gln Arg Asp
 405 410 415
 Val Gln Glu Lys Phe Asp Ile Thr Leu Thr Lys His Lys Gly Gln Tyr
 420 425 430
 Ala Leu Arg Lys Leu Tyr His Glu Ser Pro Arg Val Ile Leu Val Leu
 435 440 445
 Tyr Thr Ser Pro Thr Cys Gly Pro Cys Arg Thr Leu Lys Pro Ile Leu
 450 455 460
 Asn Lys Val Val Asp Glu Tyr Asn His Asp Val His Phe Val Glu Ile
 465 470 475 480
 Asp Ile Glu Glu Asp Gln Glu Ile Ala Glu Ala Ala Gly Ile Met Gly
 485 490 495
 Thr Pro Cys Val Gln Phe Phe Lys Asn Lys Glu Met Leu Arg Leu Gly
 500 505 510
 Asn Val Leu Ser Val Leu Lys Leu His Arg Leu Leu Cys Ser Gly Leu
 515 520 525
 Ala Lys Asp Ser Glu Ser Val
 530 535

<210> 233
 <211> 117
 <212> PRT
 <213> Helianthus annuus

<400> 233
 Ala Val Val Glu Ala Tyr Gly Glu Glu Gly Lys Asn Val Leu Gly Gly
 1 5 10 15
 Leu Lys Val Lys Asn Val Val Ser Gly Glu Val Ser Asp Leu Lys Val
 20 25 30
 Asn Gly Leu Phe Phe Ala Ile Gly His Glu Pro Ala Thr Lys Phe Leu
 35 40 45
 Asp Gly Gln Leu Glu Leu Asp Ser Asp Gly Tyr Val Val Thr Lys Pro
 50 55 60
 Gly Thr Thr Ile Ser Ser Val Lys Gly Val Phe Ala Ala Gly Asp Val
 65 70 75 80
 Gln Asp Lys Lys Tyr Arg Gln Ala Val Thr Ala Ala Gly Ser Gly Cys
 85 90 95
 Met Ala Ala Leu Asp Ala Glu His Tyr Leu Gln Glu Ile Gly Ser Gln
 100 105 110
 Glu Gly Lys Ser Asp
 115

<210> 234
 <211> 300
 <212> PRT
 <213> Arcaeoglobus fulgidus

<400> 234
 Met Tyr Asp Val Ala Ile Ile Gly Gly Gly Pro Ala Gly Leu Thr Ala
 1 5 10 15
 Ala Leu Tyr Ser Ala Arg Tyr Gly Leu Lys Thr Val Phe Phe Glu Thr
 20 25 30
 Val Asp Pro Val Ser Gln Leu Ser Leu Ala Ala Lys Ile Glu Asn Tyr
 35 40 45

Pro Gly Phe Glu Gly Ser Gly Met Glu Leu Leu Glu Lys Met Lys Glu
 50 55 60
 Gln Ala Val Lys Ala Gly Ala Glu Trp Lys Leu Glu Lys Val Glu Arg
 65 70 75 80
 Val Glu Arg Asn Gly Glu Thr Phe Thr Val Ile Ala Glu Gly Gly Glu
 85 90 95
 Tyr Glu Ala Lys Ala Ile Ile Val Ala Thr Gly Gly Lys His Lys Glu
 100 105 110
 Ala Gly Ile Glu Gly Glu Ser Ala Phe Ile Gly Arg Gly Val Ser Tyr
 115 120 125
 Cys Ala Thr Cys Asp Gly Asn Phe Phe Arg Gly Lys Lys Val Ile Val
 130 135 140
 Tyr Gly Ser Gly Lys Glu Ala Ile Glu Asp Ala Ile Tyr Leu His Asp
 145 150 155 160
 Ile Gly Cys Glu Val Thr Ile Val Ser Arg Thr Pro Ser Phe Arg Ala
 165 170 175
 Glu Lys Ala Leu Val Glu Glu Val Glu Lys Arg Gly Ile Pro Val His
 180 185 190
 Tyr Ser Thr Thr Ile Arg Lys Ile Ile Gly Ser Gly Lys Val Glu Lys
 195 200 205
 Val Val Ala Tyr Asn Arg Glu Lys Lys Glu Glu Phe Glu Ile Glu Ala
 210 215 220
 Asp Gly Ile Phe Val Ala Ile Gly Met Arg Pro Ala Thr Asp Val Val
 225 230 235 240
 Ala Glu Leu Gly Val Glu Arg Asp Ser Met Gly Tyr Ile Lys Val Asp
 245 250 255
 Lys Glu Gln Arg Thr Asn Val Glu Gly Val Phe Ala Ala Gly Asp Cys
 260 265 270
 Cys Asp Asn Pro Leu Lys Gln Val Val Thr Ala Cys Gly Asp Gly Ala
 275 280 285
 Val Ala Ala Tyr Ser Ala Tyr Lys Tyr Leu Thr Ser
 290 295 300

<210> 235
 <211> 315
 <212> PRT
 <213> Bacillus halodurans

<400> 235
 Met Gly Glu Glu Gln Lys Val Tyr Asp Val Val Ile Ala Gly Ala Gly
 1 5 10 15
 Pro Ala Gly Met Thr Ala Ala Val Tyr Thr Ser Arg Ala Asn Leu Ser
 20 25 30
 Thr Val Met Val Glu Arg Gly Val Pro Gly Gly Gln Met Ala Asn Thr
 35 40 45
 Glu Asp Val Glu Asn Tyr Pro Gly Phe Asp His Ile Leu Gly Pro Glu
 50 55 60
 Leu Ser Thr Lys Met Phe Glu His Ala Lys Lys Phe Gly Ala Glu Tyr
 65 70 75 80
 Ala Tyr Gly Asp Ile Lys Glu Ile Ile Asp Gln Gly Asp Leu Lys Leu
 85 90 95
 Val Lys Ala Gly Asn Lys Glu Tyr Lys Ala Arg Ala Val Ile Val Ala
 100 105 110
 Thr Gly Ala Glu Tyr Lys Lys Leu Gly Val Pro Gly Glu Lys Glu Leu
 115 120 125
 Ser Gly Arg Gly Val Ser Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe
 130 135 140
 Lys Gly Lys Glu Leu Val Val Val Gly Gly Gly Asp Ser Ala Val Glu
 145 150 155 160
 Glu Ala Val Tyr Leu Thr Arg Phe Ala Ser Lys Val Thr Ile Ile His
 165 170 175
 Arg Arg Asp Gln Leu Arg Ala Gln Lys Ile Leu Gln Gln Arg Ala Phe
 180 185 190
 Asp Asn Asp Lys Ile Glu Phe Ile Trp Asp His Val Val Lys Gln Ile
 195 200 205
 Asn Gly Thr Asp Gly Lys Val Ser Ser Val Thr Ile Glu His Ala Lys

210						215					220				
Thr	Gly	Glu	Gln	Gln	Asp	Phe	Lys	Thr	Asp	Gly	Val	Phe	Ile	Tyr	Ile
225					230					235					240
Gly	Met	Leu	Pro	Leu	Asn	Glu	Ala	Val	Lys	Asn	Leu	Asn	Ile	Leu	Asn
				245					250					255	
Asp	Glu	Gly	Tyr	Ile	Val	Thr	Asn	Glu	Glu	Met	Glu	Thr	Ser	Val	Pro
			260					265					270		
Gly	Ile	Phe	Ala	Ala	Gly	Asp	Val	Arg	Glu	Lys	Ser	Leu	Arg	Gln	Ile
		275				280						285			
Val	Thr	Ala	Thr	Gly	Asp	Gly	Ser	Leu	Ala	Ala	Gln	Asn	Val	Gln	His
	290				295						300				
Tyr	Ile	Glu	Glu	Leu	Ala	Glu	Lys	Val	Lys	Asn					
305					310					315					

<210> 236
 <211> 330
 <212> PRT
 <213> Bacillus halodurans

<400> 236															
Met	Ser	Arg	Lys	Glu	Glu	Leu	Tyr	Asp	Ile	Thr	Ile	Ile	Gly	Gly	Gly
1				5					10					15	
Pro	Thr	Gly	Leu	Phe	Ala	Ala	Phe	Tyr	Gly	Gly	Met	Arg	Gln	Ala	Lys
			20					25					30		
Val	Lys	Ile	Ile	Glu	Ser	Met	Pro	Gln	Leu	Gly	Gly	Gln	Leu	Ala	Ala
		35					40					45			
Leu	Tyr	Pro	Glu	Lys	Tyr	Ile	Tyr	Asp	Val	Ala	Gly	Phe	Pro	Lys	Val
	50					55					60				
Lys	Ala	Gln	Asp	Leu	Val	Asn	Asp	Leu	Lys	Arg	Gln	Ala	Glu	Gln	Phe
	65				70					75					80
Asn	Pro	Thr	Ile	Ala	Leu	Glu	Gln	Ser	Val	Gln	Asn	Val	Thr	Lys	Glu
			85						90					95	
Thr	Asp	Asp	Thr	Phe	Thr	Ile	Lys	Thr	Asp	Lys	Glu	Thr	His	Tyr	Ser
			100					105					110		
Lys	Ala	Ile	Ile	Ile	Thr	Ala	Gly	Ala	Gly	Ala	Phe	Gln	Pro	Arg	Arg
		115					120					125			
Leu	Glu	Val	Glu	Gly	Ala	Lys	Gln	Tyr	Glu	Gly	Lys	Asn	Leu	Gln	Tyr
	130					135					140				
Phe	Val	Asn	Asp	Leu	Asn	Ala	Tyr	Ala	Gly	Lys	Asn	Val	Leu	Ile	Ser
	145				150					155					160
Gly	Gly	Gly	Asp	Ser	Ala	Val	Asp	Trp	Ala	Leu	Met	Leu	Glu	Pro	Val
			165					170						175	
Ala	Lys	Asn	Val	Thr	Leu	Ile	His	Arg	Arg	Asp	Lys	Phe	Arg	Ala	His
		180						185					190		
Glu	His	Ser	Val	Glu	Leu	Leu	Gln	Lys	Ser	Ser	Val	Asn	Ile	Leu	Thr
		195					200					205			
Pro	Phe	Ala	Ile	Ser	Glu	Leu	Ser	Gly	Asp	Gly	Glu	Lys	Ile	His	His
	210					215					220				
Val	Thr	Ile	Gln	Glu	Val	Lys	Gly	Asp	Ala	Val	Glu	Thr	Leu	Asp	Val
	225				230					235					240
Asp	Glu	Val	Ile	Val	Asn	Phe	Gly	Phe	Val	Ser	Ser	Leu	Gly	Pro	Ile
				245					250					255	
Lys	Gly	Trp	Gly	Leu	Glu	Ile	Glu	Lys	Asn	Ser	Ile	Val	Val	Asn	Thr
		260						265					270		
Lys	Met	Glu	Thr	Asn	Ile	Pro	Gly	Ile	Tyr	Ala	Ala	Gly	Asp	Ile	Cys
	275						280					285			
Thr	Tyr	Pro	Gly	Lys	Val	Lys	Leu	Ile	Ala	Thr	Gly	Phe	Gly	Glu	Ala
	290					295					300				
Pro	Thr	Ala	Val	Asn	Asn	Ala	Lys	Ala	Phe	Ile	Asp	Pro	Thr	Ala	Arg
	305				310					315					320
Val	Phe	Pro	Gly	His	Ser	Thr	Ser	Leu	Phe						
				325					330						

<210> 237
 <211> 213

<212> PRT
 <213> Bacillus halodurans

<400> 237
 Met Thr Asn Leu His Tyr Thr Val Lys Ser Leu Met Arg Phe Lys Asp
 1 5 10 15
 Lys Thr Val Ile Ile Ser Gly Gly Gly Asn Ser Ala Ile Asp Trp Ala
 20 25 30
 Asn Glu Leu Glu Pro Ile Ala Lys Lys Val Tyr Leu Thr Tyr Arg Lys
 35 40 45
 Glu Ala Leu Asn Gly His Glu Ala Gln Ile Ser Gln Leu Leu Ser Ser
 50 55 60
 Ser Ala Thr Cys Leu Phe His Thr Thr Ile Ser Lys Leu Ile Ala Arg
 65 70 75 80
 Asp Asn Lys Glu Val Ile Glu Gln Val Glu Leu Thr Asp His Gln Thr
 85 90 95
 Gly Glu Val Thr Asn Leu Ala Val Asp Glu Val Ile Ile Asn His Gly
 100 105 110
 Tyr Glu Arg Asp Lys Ser Leu Leu Asp Gln Ser Glu Val Thr Leu Asp
 115 120 125
 Arg Ile Asp Asp Tyr Tyr Ile Ala Gly Thr Pro Thr Ser Ala Thr Ser
 130 135 140
 Val Gly Gly Ile Tyr Ala Ala Gly Asp Val Leu Lys His Glu Gly Lys
 145 150 155 160
 Leu His Leu Ile Ala Gly Ala Phe Gln Asp Ala Ala Asn Ala Val Asn
 165 170 175
 Gln Ala Lys Gln Trp Ile Glu Pro Glu Ala His Gln Ser Ala Met Val
 180 185 190
 Ser Ser His Asn His Val Phe Lys Glu Arg Asn Arg Glu Leu Ile Arg
 195 200 205
 Gln Met Leu Lys Asn
 210

<210> 238
 <211> 136
 <212> PRT
 <213> Bacillus halodurans

<400> 238
 Met Asn Trp Glu Glu Leu Tyr Asp Val Thr Ile Ile Gly Gly Gly Pro
 1 5 10 15
 Ala Gly Leu Phe Ser Ala Phe Tyr Ser Gly Leu Arg Glu Met Lys Thr
 20 25 30
 Lys Val Ile Glu Tyr Gln Pro Met Leu Gly Gly Lys Val His Val Tyr
 35 40 45
 Pro Glu Lys Met Ile Trp Asp Val Gly Gly Leu Thr Pro Ile Leu Gly
 50 55 60
 Glu Lys Leu Ile Glu Gln Leu Val Thr Gln Ala Leu Thr Phe Asn Pro
 65 70 75 80
 Thr Val Val Leu Asn Glu Lys Val Thr Ser Ile Ala Gln Glu Glu Ser
 85 90 95
 Gly Trp Phe Val Ile Arg Thr Ala Ser Gly Arg Ala His Leu Thr Lys
 100 105 110
 Thr Val Ile Ile Ala Val Gly Gly Ile Leu Lys Pro Gln Lys Asn
 115 120 125
 Arg Ala Arg Arg Gly Arg Thr Ile
 130 135

<210> 239
 <211> 312
 <212> PRT
 <213> Campylobacter jejuni

<400> 239
 Met Leu Asp Val Ala Ile Ile Gly Gly Gly Pro Ala Gly Leu Ser Ala

1				5				10					15				
Gly	Leu	Tyr	Ala	Thr	Arg	Gly	Gly	Leu	Lys	Asn	Val	Val	Met	Phe	Glu		
			20					25					30				
Lys	Gly	Met	Pro	Gly	Gly	Gln	Ile	Thr	Ser	Ser	Ser	Glu	Ile	Glu	Asn		
		35					40					45					
Tyr	Pro	Gly	Val	Ala	Gln	Val	Met	Asp	Gly	Ile	Ser	Phe	Met	Ala	Pro		
	50					55				60							
Trp	Ser	Glu	Gln	Cys	Met	Arg	Phe	Gly	Leu	Lys	His	Glu	Met	Val	Gly		
65				70					75						80		
Val	Glu	Gln	Ile	Leu	Lys	Asn	Ser	Asp	Gly	Ser	Phe	Thr	Ile	Lys	Leu		
				85					90					95			
Glu	Gly	Gly	Lys	Thr	Glu	Leu	Ala	Lys	Ala	Val	Ile	Val	Cys	Thr	Gly		
			100					105					110				
Ser	Ala	Pro	Lys	Lys	Ala	Gly	Phe	Lys	Gly	Glu	Asp	Glu	Phe	Phe	Gly		
		115					120					125					
Lys	Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn		
	130					135					140						
Lys	Glu	Val	Ala	Val	Leu	Gly	Gly	Gly	Asp	Thr	Ala	Leu	Glu	Glu	Ala		
145					150				155						160		
Leu	Tyr	Leu	Ala	Asn	Ile	Cys	Ser	Lys	Ile	Tyr	Leu	Ile	His	Arg	Arg		
				165					170					175			
Asp	Glu	Phe	Arg	Ala	Ala	Pro	Ser	Thr	Val	Glu	Lys	Val	Lys	Lys	Asn		
			180					185					190				
Glu	Lys	Ile	Glu	Leu	Ile	Thr	Ser	Ala	Ser	Val	Asp	Glu	Val	Tyr	Gly		
	195					200						205					
Asp	Lys	Met	Gly	Val	Ala	Gly	Val	Lys	Val	Lys	Leu	Lys	Asp	Gly	Ser		
	210					215					220						
Ile	Arg	Asp	Leu	Asn	Val	Pro	Gly	Ile	Phe	Thr	Phe	Val	Gly	Leu	Asn		
225				230					235						240		
Val	Arg	Asn	Glu	Ile	Leu	Lys	Gln	Asp	Asp	Ser	Lys	Phe	Leu	Cys	Asn		
				245				250						255			
Met	Glu	Glu	Gly	Gln	Val	Ser	Val	Asp	Leu	Lys	Met	Gln	Thr	Ser			
			260				265					270					
Val	Ala	Gly	Leu	Phe	Ala	Ala	Gly	Asp	Leu	Arg	Lys	Asp	Ala	Pro	Lys		
		275					280					285					
Gln	Val	Ile	Cys	Ala	Ala	Gly	Asp	Gly	Ala	Val	Ala	Ala	Leu	Ser	Ala		
	290					295					300						
Met	Ala	Tyr	Ile	Glu	Ser	Leu	His										
305					310												

<210> 240
 <211> 348
 <212> PRT
 <213> Caulobacter crescentus

<400> 240
 Met Ser Pro Leu Arg Arg Ile His Thr Ile Ser Pro Pro Met Ser Thr
 1 5 10 15
 Leu Ser Pro Arg Gln Thr Arg Cys Leu Ile Ile Gly Ser Gly Pro Ala
 20 25 30
 Gly Tyr Thr Ala Ala Ile Tyr Ala Ala Arg Ala Leu Leu Lys Pro Val
 35 40 45
 Leu Ile Ala Gly Ile Gln Pro Gly Gly Gln Leu Thr Ile Thr Thr Asp
 50 55 60
 Val Glu Asn Tyr Pro Gly Phe Ala Asp Val Ile Gln Gly Pro Trp Leu
 65 70 75 80
 Met Asp Gln Met Arg Ala Gln Ala Glu His Val Gly Thr Glu Phe Val
 85 90 95
 Ser Asp Ile Val Thr Ser Val Asp Leu Ser Lys Arg Pro Phe Thr Val
 100 105 110
 Lys Thr Asp Ser Gly Gln Asp Trp Ile Ala Glu Thr Ile Ile Ile Ala
 115 120 125
 Thr Gly Ala Gln Ala Lys Trp Leu Gly Leu Glu Ser Glu Ala Lys Phe
 130 135 140
 Gln Gly Phe Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 145 150 155 160

Arg	Asn	Lys	Asp	Val	Ile	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu
				165					170					175	
Glu	Ala	Leu	Phe	Leu	Thr	Ser	Phe	Ala	Ser	Lys	Val	Thr	Leu	Val	His
			180					185					190		
Arg	Lys	Asp	Glu	Leu	Arg	Ala	Glu	Lys	Ile	Leu	Gln	Glu	Arg	Leu	Leu
		195					200					205			
Ala	His	Pro	Lys	Ile	Glu	Val	Ile	Trp	Asp	Ser	Val	Ile	Asp	Glu	Val
	210				215						220				
Leu	Gly	Gln	Thr	Asp	Pro	Met	Gly	Val	Thr	Gly	Ala	Arg	Leu	Lys	Asn
	225				230					235					240
Val	Lys	Thr	Gly	Glu	Thr	Gln	Glu	Val	Ala	Ala	Asp	Gly	Val	Phe	Ile
				245					250					255	
Ala	Ile	Gly	His	Ala	Pro	Ser	Ser	Glu	Leu	Phe	Ala	Gly	Gln	Leu	Glu
			260					265					270		
Thr	Gly	Ser	Gly	Gly	Tyr	Leu	Lys	Val	Lys	Pro	Gly	Thr	Ala	Ser	Thr
		275				280						285			
Ala	Ile	Glu	Gly	Val	Tyr	Ala	Ala	Gly	Asp	Val	Thr	Asp	Asp	Val	Tyr
	290				295						300				
Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Met	Gly	Cys	Met	Ala	Ala	Leu	Glu
	305				310					315					320
Ala	Val	Arg	Phe	Leu	Ala	Glu	Glu	Asp	His	Lys	Ala	Ala	His	His	Pro
				325					330					335	
Ile	Ser	His	Ala	Glu	Ala	Asn	Lys	Ile	Gly	Val	Trp				
			340					345							

<210> 241
 <211> 285
 <212> PRT
 <213> Clostridium acetobutylicum

<400> 241															
Met	Glu	Arg	Tyr	Asp	Ile	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Leu
1				5					10					15	
Ala	Ser	Ala	Ile	Asn	Ala	Lys	Thr	Arg	Asn	Lys	Ser	Val	Ile	Val	Phe
			20					25					30		
Gly	Ser	Ser	Asp	Leu	Ser	Lys	Lys	Leu	Thr	Leu	Ala	Pro	Val	Ile	Asn
		35					40					45			
Asn	Tyr	Leu	Gly	Phe	Tyr	Gly	Ile	Arg	Gly	Ala	Glu	Leu	Gln	Glu	Lys
	50					55					60				
Phe	Lys	Glu	His	Ile	Asp	Asn	Met	Gly	Ile	Gln	Ile	Glu	Asn	Val	Lys
	65				70					75					80
Val	Asn	Asn	Ile	Tyr	Ala	Met	Gly	Glu	Tyr	Phe	Ser	Ile	Met	Thr	Ser
				85					90					95	
Lys	Asp	Thr	Tyr	Glu	Ala	Ser	Lys	Val	Ile	Leu	Ala	Met	Gly	Met	Glu
			100					105					110		
His	Thr	Lys	Pro	Leu	Lys	Gly	Glu	Asp	Lys	Phe	Leu	Gly	Arg	Gly	Val
		115					120					125			
Gly	Tyr	Cys	Ala	Thr	Cys	Asp	Ala	Pro	Leu	Tyr	Lys	Gly	Lys	Ile	Val
	130					135						140			
Thr	Ile	Val	Gly	Tyr	Asn	Lys	Glu	Ala	Glu	Ser	Glu	Ala	Asn	Tyr	Leu
	145				150					155					160
Ala	Glu	Leu	Ala	Ser	Lys	Val	Tyr	Tyr	Val	Pro	Arg	Tyr	Lys	Asp	Glu
				165					170					175	
Tyr	Gln	Leu	Val	Ser	Ala	Val	Glu	Ile	Val	Lys	Asp	Val	Pro	Val	Glu
			180					185					190		
Ile	Val	Gly	Asp	Lys	Lys	Val	Glu	Lys	Leu	Lys	Leu	Lys	Ser	Arg	Glu
	195						200					205			
Leu	Glu	Thr	Asp	Gly	Val	Phe	Val	Leu	Lys	Asp	Ser	Ala	Pro	Pro	Glu
	210				215						220				
Gln	Leu	Val	Pro	Gly	Leu	Tyr	Val	Glu	Asp	Gly	His	Ile	Lys	Val	Asn
	225				230					235					240
Arg	Lys	Met	Glu	Thr	Asn	Ile	Asp	Gly	Cys	Tyr	Ala	Ala	Gly	Asp	Cys
				245					250					255	
Thr	Gly	Lys	Pro	Tyr	Gln	Tyr	Met	Lys	Ala	Val	Gly	Glu	Gly	Gln	Val
			260					265					270		
Ala	Ala	Leu	Asn	Ala	Val	Glu	Lys	Leu	Tyr	Thr	Lys	Ala			

<210> 242
 <211> 291
 <212> PRT
 <213> Clostridium acetobutylicum

<400> 242
 Met Asp Arg Tyr Asp Ile Ala Ile Ile Gly Ser Gly Pro Ala Gly Leu
 1 5 10 15
 Ser Ala Ala Ile Asn Ala Val Ile Arg Asn Lys Lys Val Ile Leu Phe
 20 25 30
 Gly Ser Asp Asn Leu Ser Asn Lys Leu Leu Lys Ala Pro Lys Ile Asn
 35 40 45
 Asn Tyr Leu Gly Ile Tyr Asp Val Ser Gly Lys Glu Leu Lys Glu Lys
 50 55 60
 Phe Leu Glu His Leu Lys Tyr Met Asn Ile Glu Ile Lys Asn Glu Lys
 65 70 75 80
 Val Asn Ser Val Tyr Ser Met Gly Asp Tyr Phe Ala Leu Ser Leu Asn
 85 90 95
 Gln Lys Met Tyr Glu Ala Thr Ser Ile Ile Ala Ser Gly Val Glu
 100 105 110
 Phe Ser Lys Pro Leu Asn Gly Glu Asp Glu Leu Leu Gly Lys Gly Val
 115 120 125
 Gly Tyr Cys Ala Thr Cys Asp Ala Pro Leu Tyr Lys Gly Lys Thr Val
 130 135 140
 Ala Ile Val Gly Tyr Thr Lys Glu Ala Glu Glu Ala Asn Tyr Val
 145 150 155 160
 Ser Glu Leu Ala Gly Lys Leu Tyr Tyr Ile Pro Met Tyr Lys Asp Lys
 165 170 175
 Val Ser Leu Lys Glu Val Ile Glu Val Val Glu Asp Lys Pro Ile Ser
 180 185 190
 Ile Leu Gly Lys Asp Lys Val Ser Gly Leu Gln Met Ser Lys Gly Glu
 195 200 205
 Ile Asn Thr Asp Ala Val Phe Ile Ile Lys Asp Ser Val Ser Pro Gly
 210 215 220
 Lys Leu Val Pro Gly Leu Leu Met Asn Gly Glu His Ile Ala Val Asp
 225 230 235 240
 Ile Asp Met Lys Thr Asn Ile Glu Gly Cys Phe Ala Ala Gly Asp Cys
 245 250 255
 Ala Gly Arg Pro Tyr Gln Tyr Ile Lys Ser Ala Gly Gln Gly Gln Ile
 260 265 270
 Ala Ala Leu Ser Ala Val Ser Tyr Ile Asp Lys Ile Lys Leu Asn Lys
 275 280 285
 Lys Ile Ile
 290

<210> 243
 <211> 314
 <212> PRT
 <213> Clostridium sticklandii

<400> 243
 Met Ser Lys Ile Tyr Asp Leu Val Ile Ile Gly Ala Gly Pro Ala Gly
 1 5 10 15
 Leu Ser Ala Gly Leu Tyr Gly Ala Arg Gly Lys Met Ser Thr Leu Ile
 20 25 30
 Ile Glu Lys Asp Lys Thr Gly Gly Gln Ile Val Thr Thr Glu Glu Val
 35 40 45
 Ala Asn Tyr Pro Gly Ser Ile His Asp Ala Ser Gly Pro Ser Leu Ile
 50 55 60
 Ala Arg Met Ala Glu Gln Ala Asp Glu Phe Gly Thr Glu Arg Ile Lys
 65 70 75 80
 Asp Ser Ile Val Asp Phe Asp Phe Thr Gly Lys Ile Lys Ile Leu Lys
 85 90 95

Gly Thr Lys Ala Glu Tyr Gln Ala Lys Ala Val Ile Val Ala Thr Gly
 100 105 110
 Ala Ser Pro Lys Lys Leu Asp Cys Pro Gly Glu Lys Glu Leu Thr Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Thr Cys Asp Ala Asp Phe Phe Gln Asp
 130 135 140
 Met Glu Val Phe Val Val Gly Gly Gly Asp Ser Ala Val Glu Glu Ala
 145 150 155 160
 Met Tyr Leu Thr Lys Phe Ala Ser Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Asp Ser Leu Arg Ala Ala Lys Ser Ile Gln Asp Lys Ala Phe Ala Asn
 180 185 190
 Pro Lys Ile Asp Phe Lys Trp Asp Ser Val Ile Lys Glu Ile Lys Gly
 195 200 205
 Asp Gly Ile Val Glu Ser Val Val Phe Glu Asn Thr Lys Thr Gly Glu
 210 215 220
 Leu Ser Glu His Phe Ala Asp Glu Glu Phe Gly Thr Phe Gly Ile Phe
 225 230 235 240
 Val Phe Thr Gly Tyr Ile Pro Gln Thr Asp Ile Phe Lys Asp Lys Val
 245 250 255
 Asp Met Asn Gln Ser Gly Tyr Phe Val Thr Asn Gln Asn Met Glu Thr
 260 265 270
 Asn Ile Pro Gly Val Phe Ala Ala Gly Asp Cys Arg Glu Lys Val Leu
 275 280 285
 Arg Gln Val Val Thr Ala Thr Ala Asp Gly Ala Ile Ala Ala Ile Met
 290 295 300
 Ala Glu Lys Tyr Ile Glu His Glu Gly Leu
 305 310

<210> 244
 <211> 325
 <212> PRT
 <213> Deinococcus radiodurans

<400> 244
 Met Thr Ala Pro Thr Ala His Asp Tyr Asp Val Val Ile Ile Gly Gly
 1 5 10 15
 Gly Pro Ala Gly Leu Thr Ala Ala Ile Tyr Thr Gly Arg Ala Gln Leu
 20 25 30
 Ser Thr Leu Ile Leu Glu Lys Gly Met Pro Gly Gly Gln Ile Ala Trp
 35 40 45
 Ser Glu Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Pro Ile Ala Gly
 50 55 60
 Met Glu Leu Ala Gln Arg Met His Gln Gln Ala Glu Lys Phe Gly Ala
 65 70 75 80
 Lys Val Glu Met Asp Glu Val Gln Gly Val Gln His Asp Ala Thr Ser
 85 90 95
 His Pro Tyr Pro Phe Thr Val Arg Gly Tyr Asn Gly Glu Tyr Arg Ala
 100 105 110
 Lys Ala Val Ile Leu Ala Thr Gly Ala Asp Pro Arg Lys Leu Gly Ile
 115 120 125
 Pro Gly Glu Asp Asn Phe Trp Gly Lys Gly Val Ser Thr Cys Ala Thr
 130 135 140
 Cys Asp Gly Phe Phe Tyr Lys Gly Lys Lys Val Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ala Ala Val Glu Glu Gly Met Phe Leu Thr Lys Phe Ala Asp
 165 170 175
 Glu Val Thr Val Ile His Arg Arg Asp Thr Leu Arg Ala Asn Lys Val
 180 185 190
 Ala Gln Ala Arg Ala Phe Ala Asn Pro Lys Met Lys Phe Ile Trp Asp
 195 200 205
 Thr Ala Val Glu Glu Ile Gln Gly Ala Asp Ser Val Ser Gly Val Lys
 210 215 220
 Leu Arg Asn Leu Lys Thr Gly Glu Val Ser Glu Leu Ala Thr Asp Gly
 225 230 235 240
 Val Phe Ile Phe Ile Gly His Val Pro Asn Thr Ala Phe Val Lys Asp

				245					250					255			
Thr	Val	Ser	Leu	Arg	Asp	Asp	Gly	Tyr	Val	Asp	Val	Arg	Asp	Glu	Ile		
			260					265					270				
Tyr	Thr	Asn	Ile	Pro	Met	Leu	Phe	Ala	Ala	Gly	Asp	Val	Ser	Asp	Tyr		
		275					280					285					
Ile	Tyr	Arg	Gln	Leu	Ala	Thr	Ser	Val	Gly	Ala	Gly	Thr	Arg	Ala	Ala		
	290					295					300						
Met	Met	Thr	Glu	Arg	Gln	Leu	Ala	Ala	Leu	Glu	Val	Glu	Gly	Glu	Glu		
305					310					315					320		
Val	Thr	Ala	Ala	Asp													
				325													

<210> 245
 <211> 61
 <212> PRT
 <213> Enterococcus faecalis

<220>
 <221> VARIANT
 <222> 33, 45, 46
 <223> Xaa = Any Amino Acid

				245													
Met	Met	Asp	Thr	Leu	Ile	Ile	Glu	Lys	Asp	Lys	Ile	Gly	Gly	Gln	Val		
1				5				10						15			
Thr	Thr	Thr	Ser	Glu	Ile	Val	Asn	Tyr	Pro	Ala	Ile	Arg	His	Thr	Thr		
			20					25					30				
Xaa	Pro	Glu	Leu	Met	Gly	Glu	Met	Arg	Ile	Gln	Ala	Xaa	Xaa	Phe	Gly		
		35				40						45					
Val	Ala	Phe	Thr	Lys	Asp	Glu	Ile	Ile	Asp	Val	Asp	Phe					
	50					55					60						

<210> 246
 <211> 205
 <212> PRT
 <213> Halobacterium sp

				246													
Met	Thr	Glu	Asp	Ser	His	Asp	Leu	Val	Ile	Ala	Gly	Ser	Gly	Ile	Ala		
1				5				10						15			
Gly	Leu	Ser	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asp	Leu	Glu	Pro	Leu		
			20					25				30					
Val	Leu	Glu	Gly	Asp	Glu	Pro	Gly	Gly	Gln	Leu	Thr	Leu	Thr	Thr	Asp		
		35					40					45					
Val	Glu	Asn	Tyr	Leu	Gly	Phe	Pro	Asp	Gly	Val	Gly	Gly	Met	Asp	Leu		
	50					55					60						
Val	Gln	Arg	Gly	Lys	Glu	Gln	Ala	Glu	Gln	Phe	Gly	Ala	Gln	Phe	Glu		
	65				70					75				80			
His	Gly	Arg	Ile	Glu	Ala	Ala	Asp	Leu	Asp	Gly	Gln	Pro	Leu	Glu	Leu		
			85					90					95				
Ser	Leu	Ser	Thr	Gly	Asp	Thr	Leu	Tyr	Thr	Arg	Ser	Leu	Ile	Val	Ala		
			100					105					110				
Thr	Gly	Ala	Ser	Ala	Arg	Trp	Val	Gly	Ala	Glu	Asn	Glu	Asp	Glu	Leu		
			115				120					125					
Met	Gly	Ala	Gly	Leu	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Ala	Phe	His		
	130					135					140						
Arg	Gly	Asp	Asp	Val	Leu	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu		
	145				150					155				160			
Glu	Ala	Leu	Phe	Leu	Ala	Lys	Phe	Ala	Asp	Ser	Val	Thr	Val	Val	His		
			165					170						175			
Arg	Arg	Glu	Glu	Leu	Arg	Ala	Ser	Glu	Ile	Met	Ala	Asp	Arg	Ala	Arg		
			180					185					190				
Asp	His	Asp	Asp	Val	Gln	Phe	Arg	Trp	Asn	Thr	Glu	Leu					
		195					200					205					

<210> 247
 <211> 362
 <212> PRT
 <213> Halobacterium sp

<400> 247
 Met Thr Glu Ala Thr Ala Asp Arg Thr Ala Leu Thr Asp Gly Gly Arg
 1 5 10 15
 Asp Val Val Glu His Arg Gln Leu Val Ile Val Gly Ser Gly Ile Ala
 20 25 30
 Ala Leu Ser Ala Ala Thr Tyr Ala Ala Arg Ser Asn Asn Asp Pro Leu
 35 40 45
 Leu Phe Glu Gly Asp Glu Pro Gly Gly Gln Leu Thr Leu Thr Ser Glu
 50 55 60
 Val Glu Asn Tyr Pro Gly Phe Pro Glu Gly Ile Ala Gly Ala Glu Leu
 65 70 75 80
 Ile Gln Glu Met Lys Thr Gln Ala Thr Arg Phe Gly Ala Glu Val Glu
 85 90 95
 His Gly Ile Val Glu Ser Val Asp Asp Ser Gly Arg Pro Phe Arg Leu
 100 105 110
 Thr Leu Thr Asn Gly Asp Val Tyr Thr Ala Asp Ala Val Ile Val Ala
 115 120 125
 Ser Gly Ala Ser Ala Arg Thr Leu Gly Ile Pro Gly Glu Asp Glu Leu
 130 135 140
 Met Gly Gln Gly Val Ser Thr Cys Ala Thr Cys Asp Gly Ala Phe Phe
 145 150 155 160
 Arg Gly Glu Asp Met Ile Val Val Gly Gly Asp Ala Ala Ala Glu
 165 170 175
 Glu Ala Ser Phe Leu Thr Lys Phe Ala Asp Thr Val Tyr Leu Val His
 180 185 190
 Arg Arg Asp Glu Leu Arg Ala Glu Asp Tyr Trp Ala Asp Arg Ile Arg
 195 200 205
 Glu His Val Ala Asp Gly Asp Ile Glu Val Leu Trp Asn Thr Glu Ala
 210 215 220
 Val Glu Val His Gly Ser Pro Glu Glu Gly Val Thr Gly Ala Ser Leu
 225 230 235 240
 Val Arg His Pro Glu Gly His Pro Thr Ala Lys Leu Asp Ala Asp Glu
 245 250 255
 Thr Glu Gln Leu Glu Leu Asp Ile Gly Ala Phe Phe Ile Ala Ile Gly
 260 265 270
 His Thr Pro Asn Thr Ser Phe Leu Ala Asp Thr Gly Val Val Cys Asp
 275 280 285
 Asp Ala Gly Tyr Val Gln Thr Val Gly Gly Ala Gly Gly Gly Gln Thr
 290 295 300
 Lys Thr Asp Val Thr Gly Val Phe Gly Ala Gly Asp Val Val Asp Tyr
 305 310 315 320
 His Tyr Gln Gln Ala Val Thr Ala Ala Gly Met Gly Ser Lys Ala Ala
 325 330 335
 Ile Asp Ala Asp Glu Tyr Leu Glu Ser Val Ala Asp Gly Val Thr Gly
 340 345 350
 Glu Thr Ala Asp Ala Thr Pro Ala Asp Asp
 355 360

<210> 248
 <211> 294
 <212> PRT
 <213> Halobacterium

<400> 248
 Met Pro Thr Gln Asp Gly Glu Arg Arg Asp Val Val Ile Val Gly Gly
 1 5 10 15
 Gly Pro Ala Gly Cys Ala Ala Gly Val Phe Thr Ala Arg Tyr Gly Leu
 20 25 30
 Asp Thr Val Val Phe Asp Arg Gly Asn Ala Ala Leu Pro Arg Cys Ala
 35 40 45
 Phe Val Glu Asn Tyr Pro Gly Phe Pro Gly Gly Ile Asp Val Pro Thr

50	Leu	Arg	Gly	Leu	Phe	His	Asp	His	Ala	Glu	Thr	Ala	Gly	Cys	Asp	Leu
65	Ile	Ala	Asp	Thr	Val	Glu	Ser	Val	Asp	Arg	Pro	Ser	Asp	Asp	Asp	Thr
					85					90					95	
	Gly	Phe	Val	Val	Glu	Thr	Gln	Asp	Gly	Arg	Arg	Val	Tyr	Thr	Asp	Thr
				100					105					110		
	Val	Leu	Ala	Ala	Ala	Trp	Tyr	Asp	Gly	Ser	Tyr	Leu	Arg	Pro	Val	Val
		115						120					125			
	Gly	Asp	Ser	Ala	Phe	Glu	Thr	His	Asp	His	His	Gly	Glu	Ser	Arg	Glu
		130					135					140				
	Arg	Phe	Asp	Asp	Ala	Tyr	Ala	Asp	Ala	Asp	Gly	Arg	Thr	Pro	Val	Asp
145					150						155					160
	Gly	Leu	Tyr	Val	Ala	Ser	Pro	Gly	Gly	Gln	Arg	Ser	Ala	Gln	Ala	Val
				165						170					175	
	Ile	Ala	Ala	Gly	Asn	Gly	Ala	His	Val	Ala	Arg	Cys	Leu	Leu	Ala	Asp
				180					185					190		
	Arg	Lys	Arg	Ala	Arg	Gly	Tyr	Pro	Glu	Gly	Val	Ala	Pro	His	Tyr	Asp
		195						200					205			
	Trp	Lys	Arg	Arg	Glu	Ser	Asp	Leu	Ser	Gly	Glu	Trp	Ala	Asp	Arg	Asp
		210					215					220				
	Arg	Trp	Arg	Glu	Trp	Phe	Ala	Ala	Glu	Ala	Gly	Asp	Asp	His	Asp	Leu
225					230						235					240
	Asp	Asp	Asp	Glu	Phe	Ala	Ala	Leu	Arg	Ala	Ala	His	Leu	Asp	Arg	Thr
				245						250				255		
	Phe	Asp	Ala	Thr	Leu	Ser	Ala	Asp	Ala	Ile	Glu	Glu	Arg	Ala	Glu	Ala
			260						265					270		
	Gly	Ala	His	Arg	Leu	Leu	Asp	His	Ile	Asp	Asp	Asp	His	Ile	Glu	Ser
			275					280					285			
	Tyr	Arg	Glu	Gln	Arg	Asp										
		290														

<210> 249
 <211> 324
 <212> PRT
 <213> Helicobacter pylori

<400> 249

Met	Asn	Gln	Glu	Ile	Leu	Asp	Val	Leu	Ile	Val	Gly	Ala	Gly	Pro	Gly
1				5					10					15	
Gly	Ile	Ala	Thr	Ala	Val	Glu	Cys	Glu	Ile	Ala	Gly	Val	Lys	Lys	Val
			20					25					30		
Leu	Leu	Cys	Glu	Lys	Thr	Glu	Ser	His	Ser	Gly	Met	Leu	Glu	Lys	Phe
		35					40				45				
Tyr	Lys	Ala	Gly	Lys	Arg	Ile	Asp	Lys	Asp	Tyr	Lys	Lys	Gln	Val	Val
	50					55				60					
Glu	Leu	Lys	Gly	His	Ile	Pro	Phe	Lys	Asp	Ser	Phe	Lys	Glu	Glu	Thr
65				70					75					80	
Leu	Glu	Asn	Phe	Thr	Asn	Leu	Leu	Lys	Glu	His	His	Ile	Thr	Pro	Ser
			85						90					95	
Tyr	Lys	Thr	Asp	Ile	Glu	Ser	Val	Lys	Lys	Glu	Gly	Glu	Tyr	Phe	Lys
		100						105					110		
Ile	Thr	Thr	Thr	Ser	Asn	Thr	Thr	Tyr	His	Ala	Lys	Phe	Val	Val	Val
		115						120				125			
Ala	Ile	Gly	Lys	Met	Gly	Gln	Pro	Asn	Arg	Pro	Thr	Ala	Tyr	Lys	Ile
	130					135					140				
Pro	Val	Ala	Leu	Ser	Lys	Gln	Val	Val	Phe	Ser	Ile	Asn	Asp	Cys	Lys
145					150					155					160
Glu	Asn	Glu	Lys	Thr	Leu	Val	Ile	Gly	Gly	Asn	Ser	Ala	Val	Glu	
			165					170					175		
Tyr	Ala	Ile	Ala	Leu	Cys	Lys	Thr	Thr	Pro	Thr	Thr	Leu	Asn	Tyr	Arg
		180						185				190			
Lys	Lys	Glu	Phe	Ser	Arg	Ile	Asn	Glu	Asp	Asn	Ala	Lys	Asn	Leu	Gln
		195					200					205			
Glu	Val	Leu	Asn	Asn	Asn	Thr	Leu	Lys	Ser	Lys	Leu	Gly	Val	Asp	Ile
		210				215					220				

Glu	Ser	Leu	Glu	Glu	Asp	Asn	Thr	Gln	Ile	Lys	Val	Asn	Phe	Thr	Asp
225					230					235					240
Asn	Thr	Ser	Glu	Ser	Phe	Asp	Arg	Leu	Leu	Tyr	Ala	Ile	Gly	Gly	Ser
				245					250						255
Thr	Pro	Leu	Glu	Phe	Phe	Lys	Arg	Cys	Ser	Leu	Glu	Leu	Asp	Pro	Ser
			260					265					270		
Thr	Asn	Ile	Pro	Val	Val	Lys	Glu	Asn	Leu	Glu	Ser	Asn	Asn	Ile	Pro
		275					280					285			
Asn	Leu	Phe	Ile	Val	Gly	Asp	Ile	Leu	Phe	Lys	Ser	Gly	Ala	Ser	Ile
	290					295					300				
Ala	Thr	Ala	Leu	Asn	His	Gly	Tyr	Asp	Val	Ala	Ile	Glu	Ile	Ala	Lys
305					310					315					320
Arg	Leu	His	Ser												

<210> 250
 <211> 128
 <212> PRT
 <213> Klebsiella oxytoca

<400> 250															
Met	Gly	Thr	Ala	Lys	His	Ser	Lys	Leu	Leu	Ile	Leu	Gly	Ser	Gly	Pro
1				5					10					15	
Ala	Gly	Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Gln	Pro
			20					25				30			
Val	Leu	Ile	Thr	Gly	Met	Glu	Lys	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr
	35					40					45				
Glu	Val	Glu	Asn	Trp	Pro	Gly	Asp	Pro	Asn	Asp	Leu	Thr	Gly	Pro	Leu
	50					55					60				
Leu	Met	Glu	Arg	Met	His	Glu	His	Ala	Thr	Lys	Phe	Glu	Thr	Glu	Ile
65					70					75					80
Ile	Phe	Asp	His	Ile	Asn	Ser	Val	Asp	Leu	Gln	Asn	Arg	Pro	Phe	Arg
			85						90					95	
Leu	Val	Gly	Asp	Ser	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Pro	Asp	Tyr	Arg
		100					105					110			
Tyr	Arg	Arg	Ile	Ser	Ala	Leu	Ser	Gly	Ser	Ala	Ile	Gly	Arg	Arg	Val
		115					120					125			

<210> 251
 <211> 79
 <212> PRT
 <213> Lactococcus lactis

<400> 251															
Met	Gln	Glu	Leu	Asp	Leu	Ile	Ile	Val	Gly	Ala	Gly	Pro	Val	Gly	Leu
1				5					10					15	
Tyr	Ala	Ala	Phe	Tyr	Ala	Gly	Met	Arg	Gly	Leu	Ser	Val	Ala	Ile	Ile
		20					25					30			
Glu	Ser	Ala	Gln	Val	Pro	Gly	Gly	Gln	Pro	Gln	Asn	Leu	Tyr	Pro	Glu
		35				40					45				
Lys	Leu	Ile	Tyr	Asp	Ile	Ala	Gly	Leu	Pro	Ala	Val	Thr	Gly	Ala	Asp
	50					55				60					
Leu	Thr	Lys	Asn	Leu	Leu	Glu	Gln	Leu	Ala	Gln	Ile	Ser	His	Arg	
65					70				75						

<210> 252
 <211> 321
 <212> PRT
 <213> Lactococcus lactis

<400> 252															
Met	Gln	Glu	Leu	Asp	Leu	Ile	Ile	Val	Gly	Ala	Gly	Pro	Val	Gly	Leu
1				5					10					15	
Tyr	Ala	Ala	Phe	Tyr	Ala	Gly	Met	Arg	Gly	Leu	Ser	Val	Ala	Ile	Ile

Leu Tyr Leu Thr Arg Phe Gly Gln Ser Val Thr Ile Met His Arg Arg
 165 170 175
 Asp Lys Leu Arg Ala Gln Glu Ile Ile Gln Gln Arg Ala Phe Lys Glu
 180 185 190
 Glu Lys Ile Asn Phe Ile Trp Asp Ser Val Pro Met Glu Ile Lys Gly
 195 200 205
 Asp Asp Lys Lys Val Gln Ser Val Val Tyr Lys Asn Val Lys Thr Gly
 210 215 220
 Glu Val Thr Glu Lys Ala Phe Gly Gly Ile Phe Ile Tyr Val Gly Leu
 225 230 235 240
 Asp Pro Val Ala Glu Phe Ala Gly Asn Leu Gly Ile Thr Asp Glu Ala
 245 250 255
 Gly Trp Ile Ile Thr Asp Asp His Met Arg Thr Ser Leu Pro Gly Ile
 260 265 270
 Phe Ala Val Gly Asp Val Arg Gln Lys Asp Phe Arg Gln Ile Thr Thr
 275 280 285
 Ala Ile Gly Asp Gly Ala Gln Ala Ala Gln Glu Ala Tyr Lys Phe Val
 290 295 300
 Ala Glu Leu Asp
 305

<210> 254
 <211> 44
 <212> PRT
 <213> Lactococcus lactis

<400> 254
 Met Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
 1 5 10 15
 Tyr Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
 20 25 30
 Glu Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn
 35 40

<210> 255
 <211> 339
 <212> PRT
 <213> Listeria monocytogenes

<400> 255
 Glu Phe Tyr Ser Tyr Lys Lys Glu Ile Asn Arg Tyr Leu Ala Glu Glu
 1 5 10 15
 Asp Ser Ala Ser Ala Cys Asp Ile Leu Arg Lys Val Ile Asp Glu Lys
 20 25 30
 Pro Asn Phe Trp Pro Ala Tyr Asn Gln Leu Ala Ser Leu Tyr Phe Glu
 35 40 45
 Gln Leu Lys Glu Glu Glu Gly Val Arg Val Leu Ser Asp Leu Leu Ser
 50 55 60
 Arg Asn Pro Gly Asn Leu Gly Ile Cys Asp Leu Phe Ile Tyr His
 65 70 75 80
 Phe Tyr Lys Gly Asn Arg Lys Glu Ala Asp Glu Leu Tyr Leu Glu Leu
 85 90 95
 Arg Asp Val Leu Pro Val Leu Ala His Lys Glu Lys Leu Gly Leu
 100 105 110
 Ile His Ala Met Met Gly Glu Tyr Glu Glu Ala Asp Asp Leu Leu Glu
 115 120 125
 Gln Val Ala Asp Leu Glu Val Thr Glu Arg Ser Lys Tyr Tyr Tyr Phe
 130 135 140
 Arg Ala Lys Ser Ser Tyr Tyr Leu Gly Asp Val Glu Gly Ala Lys Met
 145 150 155 160
 Phe Trp His Ser Phe Leu Glu Cys Asp Leu Tyr Glu Asp Val Arg Phe
 165 170 175
 Pro Trp Glu Gln Glu Pro Asp Leu Thr Asn Asp Thr Arg Leu Val Leu
 180 185 190
 Glu Met Leu Gln Glu Glu Asp Asp Leu Thr His Met Leu Gly Val Tyr

Ala	Leu	Thr	Ile	Ser	Gly	Asn	Arg	Pro	Glu	Leu	Val	Leu	Phe	His	Pro
210						215					220				
Leu	Leu	Asp	Met	Ser	Asp	Trp	Ser	Tyr	Met	Glu	His	Leu	Met	Phe	Thr
225					230					235					240
Asn	Phe	Asp	Tyr	Phe	Pro	Asp	Gly	Ala	Ile	Glu	Gln	Asn	Gly	Tyr	Leu
				245					250					255	
Ile	Ala	Lys	Ala	Met	Ile	Ile	Leu	Lys	Glu	Asn	Gly	Ile	Leu	Leu	Asn
			260					265					270		
Glu	Glu	Tyr	Met	Ala	Leu	Tyr	Lys	Gln	Met	Phe	Ser	Leu	Val	Leu	Ile
		275					280					285			
Asp	Ala	Gly	Lys	Asp	Leu	Ile	Leu	Gly	Arg	Tyr	Thr	Ile	Glu	Thr	Val
290						295					300				
Ala	Ser	Ala	Ile	Ala	Lys	Leu	Phe	Leu	Pro	His	Leu	Lys	Leu	Gln	Leu
305					310					315					320
Val	Glu	Glu	Phe	Glu	Cys	Ser	Lys	Cys	Ala	Arg	Asp	Ile	Glu	Arg	Val
				325					330					335	
Leu	Ser	Arg													

<210> 256
 <211> 303
 <212> PRT
 <213> Methanothermobacter thermautotrophicus

<400> 256															
Met	Met	Thr	Asp	Tyr	Asp	Met	Ile	Val	Ile	Gly	Ala	Gly	Pro	Ala	Gly
1				5					10					15	
Leu	Thr	Ala	Gly	Ile	Tyr	Gly	Gly	Arg	Gln	Gly	Ser	Ser	Val	Leu	Met
			20					25					30		
Leu	Asp	Lys	Gly	Pro	Ala	Gly	Gly	Leu	Gly	Leu	Glu	Val	Pro	Met	Met
		35					40					45			
Glu	Asn	Tyr	Pro	Gly	Phe	Glu	Met	Ile	Ala	Gly	Met	Ser	Leu	Val	Thr
	50					55					60				
Lys	Met	Lys	Lys	Gln	Ala	Thr	Ala	Val	Ala	Glu	Leu	Arg	Glu	Met	Glu
65				70					75						80
Glu	Val	Lys	Glu	Ile	Glu	Lys	Gly	Asp	Val	Phe	Thr	Val	Lys	Thr	Ser
				85				90						95	
Arg	Asp	Thr	Tyr	Thr	Ala	Ser	Ala	Ile	Ile	Phe	Ala	Thr	Gly	Ser	Lys
			100				105						110		
His	Arg	Gln	Leu	Gly	Val	Pro	Gly	Glu	Asn	Asp	Leu	Leu	Gly	Arg	Gly
		115					120					125			
Val	Cys	Tyr	Cys	Ala	Thr	Cys	Asp	Gly	Pro	Leu	Tyr	Lys	Gly	Arg	Lys
	130					135					140				
Val	Leu	Met	Val	Gly	Gly	Asn	Ser	Ala	Ala	Gln	Glu	Ala	Val	Phe	
145					150				155					160	
Leu	Lys	Asn	Ile	Gly	Cys	Asp	Val	Ser	Ile	Val	His	Arg	Arg	Asp	Glu
				165				170						175	
Leu	Arg	Ala	Asp	Lys	Tyr	Leu	Gln	Asp	Lys	Leu	Arg	Glu	Met	Glu	Ile
			180					185					190		
Pro	Val	Ile	Trp	Asn	Ser	Val	Val	Lys	Glu	Ile	Gly	Gly	Asp	Glu	Arg
		195					200					205			
Val	Glu	Glu	Val	Ile	Ile	His	Asn	Arg	Val	Thr	Gly	Arg	Asp	Glu	Thr
210						215					220				
Leu	Lys	Val	Asp	Gly	Val	Phe	Ile	Ala	Ile	Gly	Glu	Glu	Pro	Leu	Asn
225					230					235					240
Gln	Leu	Ala	Val	Asp	Leu	Gly	Val	Glu	Val	Asp	Lys	Gly	Gly	Tyr	Ile
				245					250					255	
Ile	Thr	Asp	Lys	Phe	Gln	Arg	Thr	Asn	Val	Pro	Leu	Val	Tyr	Ala	Ala
			260					265					270		
Gly	Asp	Ile	Thr	Gly	Gly	Leu	Asn	Gln	Trp	Val	Thr	Ala	Cys	Ala	Glu
		275					280					285			
Gly	Ala	Ile	Ala	Ala	Thr	Tyr	Ala	Tyr	Arg	Glu	Ile	Gln	Ser	Tyr	
290						295					300				

<210> 257
 <211> 179
 <212> PRT
 <213> Bacillus subtilis

<400> 257
 Met Val Ile Ser Gly Gly Gly Asp Thr Ala Val Asp Trp Ala Asn Glu
 1 5 10 15
 Leu Glu Pro Ile Ala Ala Ser Val Thr Val Val His Arg Arg Glu Glu
 20 25 30
 Phe Gly Gly Met Glu Ser Ser Val Thr Lys Met Lys Gln Ser Ser Val
 35 40 45
 Arg Val Leu Thr Pro Tyr Arg Leu Glu Gln Leu Asn Gly Asp Glu Glu
 50 55 60
 Gly Ile Lys Ser Val Thr Val Cys His Thr Glu Ser Gly Gln Arg Lys
 65 70 75 80
 Asp Ile Glu Ile Asp Glu Leu Ile Ile Asn His Gly Phe Lys Ile Asp
 85 90 95
 Leu Gly Pro Met Glu Trp Gly Leu Glu Ile Glu Glu Gly Arg Val
 100 105 110
 Lys Ala Asp Arg His Met Arg Thr Asn Leu Pro Gly Val Phe Val Ala
 115 120 125
 Gly Asp Ala Ala Phe Tyr Glu Ser Lys Leu Arg Leu Ile Ala Gly Gly
 130 135 140
 Phe Thr Glu Gly Pro Thr Ala Val Asn Ser Ala Lys Ala Tyr Leu Asp
 145 150 155 160
 Pro Lys Ala Glu Asn Met Ala Met Tyr Ser Thr His His Lys Lys Leu
 165 170 175
 Val His Lys

<210> 258
 <211> 307
 <212> PRT
 <213> Mycoplasma pulmonis

<400> 258
 Met Ser Gln Asn Lys Ile Tyr Asp Val Ala Ile Ile Gly Ala Gly Pro
 1 5 10 15
 Gly Ala Leu Thr Ala Ala Ile Tyr Thr Ser Arg Gly Asn Leu Asp Thr
 20 25 30
 Val Phe Ile Asp Asn Ala Ala Pro Gly Gly Lys Leu Ile Tyr Ala Ser
 35 40 45
 Lys Ile Glu Asn Trp Pro Gly Asp Thr Ile Val Lys Gly Thr Asp Leu
 50 55 60
 Ala Ile Arg Phe Phe Glu His Ala Gln Ala Phe Gly Ala Lys Tyr Glu
 65 70 75 80
 Tyr Gly Lys Val Val Asp Leu Ile Asn Ile Lys Asp Asp Leu Lys Glu
 85 90 95
 Leu Val Leu Glu Asp Gly Lys Lys Ile Gln Ala Lys Ser Val Ile Ile
 100 105 110
 Ala Ser Gly Met Val Ser Arg Lys Pro Arg Glu Ile Leu Asn Tyr Asp
 115 120 125
 Glu Phe Glu Asn Arg Gly Val Ser Tyr Cys Val Ile Cys Asp Gly Pro
 130 135 140
 Met Tyr Gly His Asn Pro Ala Ile Ile Ile Gly Gly Gly Asn Ser Ala
 145 150 155 160
 Val Glu Glu Gly Thr Phe Leu Ser Ser Ile Ala Ser Lys Val Tyr Val
 165 170 175
 Ile Val Arg Asp Ser Asp Phe Ile Ala Glu Lys Ala Leu Val Asn Asp
 180 185 190
 Leu Lys Ser Arg Lys Asn Ile Glu Val Leu Phe Asn Ala Ser Val Lys
 195 200 205
 Glu Leu His Gly Lys Asp Ala Leu Glu Tyr Ala Ile Val Asn His Asn
 210 215 220
 Gly Lys Glu Val Lys Leu Glu Val Ala Ser Leu Phe Pro Tyr Ile Gly

[illegible]

<400	> 259															
Met 1	Ser	Gln	His	Arg 5	Lys	Leu	Ile	Ile	Leu 10	Gly	Ser	Gly	Pro	Ala 15	Gly	
Tyr	Thr	Ala	Ala	Val 20	Tyr	Ala	Ala	Arg 25	Ala	Asn	Leu	Asn	Pro 30	Val	Ile	
Ile	Thr	Gly 35	Ile	Ala	Gln	Gly	Gly 40	Gln	Leu	Met	Thr	Thr 45	Thr	Glu	Val	
Asp	Asn 50	Trp	Pro	Ala	Asp	Ala 55	Asp	Gly	Val	Gln	Gly 60	Thr	Glu	Leu	Met	
Ala 65	Arg	Phe	Leu	Ala	His 70	Ala	Glu	Arg	Phe	Gly 75	Thr	Glu	Ile	Ile	Phe 80	
Asp	Gln	Ile	Asn	Ala 85	Val	Asp	Leu	Gln	Lys	Arg 90	Pro	Phe	Thr	Leu 95	Lys	
Gly	Asp	Met	Gly 100	Glu	Tyr	Thr	Cys	Asp 105	Ala	Leu	Ile	Val	Ala 110	Thr	Gly	
Ala	Ser	Ala 115	Lys	Tyr	Leu	Gly	Leu 120	Pro	Ser	Glu	Glu	Ala 125	Phe	Ala	Gly	
Lys	Gly 130	Val	Ser	Ala	Cys	Ala 135	Thr	Cys	Asp	Gly	Phe 140	Phe	Tyr	Lys	Asn	
Gln 145	Asp	Val	Ala	Val	Val 150	Gly	Gly	Gly	Asn	Thr 155	Ala	Val	Glu	Glu	Ala 160	
Leu	Tyr	Leu	Ala	Asn 165	Ile	Ala	Lys	Thr	Val	Thr 170	Leu	Ile	His	Arg 175	Arg	
Ser	Glu	Phe	Arg 180	Ala	Glu	Lys	Ile	Met 185	Ile	Asp	Lys	Leu	Met 190	Lys	Arg	
Val	Glu	Glu 195	Gly	Lys	Ile	Ile	Leu	Lys	Leu	Glu	Ser	Asn	Leu 205	Gln	Glu	
Val	Leu 210	Gly	Asp	Asp	Arg	Gly 215	Val	Asn	Gly	Ala	Leu	Leu	Lys	Asn	Asn	
Asp 225	Gly	Ser	Glu	Gln	Gln 230	Ile	Ala	Val	Ser	Gly 235	Ile	Phe	Ile	Ala	Ile 240	
Gly	His	Lys	Pro	Asn 245	Thr	Asp	Ile	Phe	Lys 250	Gly	Gln	Leu	Glu	Met 255	Asp	
Glu	Ala	Gly	Tyr 260	Leu	Lys	Thr	Lys	Gly 265	Gly	Thr	Ala	Asp	Asn	Val	Gly	
Ala	Thr	Asn 275	Ile	Glu	Gly	Val	Trp 280	Ala	Ala	Gly	Asp	Val	Lys	Asp	His	
Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Ala	Ser	Gly 300	Cys	Gln	Ala	Ala	
Leu 305	Asp	Ala	Glu	Arg	Trp 310	Leu	Gly	Ser	Gln	Asn	Ile					

<400> 260

Met	Ser	Gln	His	Arg	Lys	Leu	Ile	Ile	Leu	Gly	Ser	Gly	Pro	Ala	Gly
1				5					10					15	
Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Asn	Pro	Val	Ile
		20						25					30		
Ile	Thr	Gly	Ile	Ala	Gln	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr	Glu	Val
		35					40					45			
Asp	Asn	Trp	Pro	Ala	Asp	Ala	Asp	Gly	Val	Gln	Gly	Pro	Glu	Leu	Met
	50				55						60				
Ala	Arg	Phe	Leu	Ala	His	Ala	Glu	Arg	Phe	Gly	Thr	Glu	Ile	Ile	Phe
65				70					75						80
Asp	Gln	Ile	Asn	Ala	Val	Asp	Leu	Gln	Lys	Arg	Pro	Phe	Thr	Leu	Lys
			85					90						95	
Gly	Asp	Met	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Val	Ala	Thr	Gly
		100						105					110		
Ala	Ser	Ala	Lys	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Glu	Ala	Phe	Ala	Gly
	115						120					125			
Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn
	130					135					140				
Gln	Asp	Val	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu	Glu	Ala
145				150					155						160
Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Lys	Thr	Val	Thr	Leu	Ile	His	Arg	Arg
			165					170						175	
Ser	Glu	Phe	Arg	Ala	Glu	Lys	Ile	Met	Ile	Asp	Lys	Leu	Met	Lys	Arg
		180						185					190		
Val	Glu	Glu	Gly	Lys	Ile	Ile	Leu	Lys	Leu	Glu	Ser	Asn	Leu	Gln	Glu
	195						200					205			
Val	Leu	Gly	Asp	Asp	Arg	Gly	Val	Asn	Gly	Ala	Leu	Leu	Lys	Asn	Asn
	210					215						220			
Asp	Gly	Ser	Glu	Gln	Gln	Ile	Ala	Val	Ser	Gly	Ile	Phe	Ile	Ala	Ile
225				230						235					240
Gly	His	Lys	Pro	Asn	Thr	Asp	Ile	Phe	Lys	Gly	Gln	Leu	Glu	Met	Asp
			245					250						255	
Glu	Ala	Gly	Tyr	Leu	Lys	Thr	Lys	Gly	Gly	Thr	Ala	Asp	Asn	Val	Gly
		260						265					270		
Ala	Thr	Asn	Ile	Glu	Gly	Val	Trp	Ala	Ala	Gly	Asp	Val	Lys	Asp	His
	275					280						285			
Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Ala	Ser	Gly	Cys	Gln	Ala	Ala
	290					295					300				
Leu	Asp	Ala	Glu	Arg	Trp	Leu	Gly	Ser	Gln	Asn	Ile				
305					310					315					

<210> 261
 <211> 316
 <212> PRT
 <213> Pseudomonas aeruginosa

<400> 261
 Met Ser Glu Val Lys His Ser Arg Leu Ile Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Val Tyr Ala Arg Ala Asn Leu Lys Pro
 20 25 30
 Val Val Ile Thr Gly Ile Gln Pro Gly Gly Gln Leu Thr Thr Thr Thr
 35 40 45
 Glu Val Asp Asn Trp Pro Gly Asp Val Glu Gly Leu Thr Gly Pro Ala
 50 55 60
 Leu Met Thr Arg Met Gln Gln His Ala Glu Arg Phe Asp Thr Glu Ile
 65 70 75 80
 Val Tyr Asp His Ile His Thr Ala Glu Leu Gln Gln Arg Pro Phe Thr
 85 90 95
 Leu Lys Gly Asp Ser Gly Thr Tyr Thr Cys Asp Ala Leu Ile Ile Ala
 100 105 110
 Thr Gly Ala Ser Ala Gln Tyr Leu Gly Met Ser Ser Glu Glu Ala Phe
 115 120 125
 Met Gly Lys Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 130 135 140
 Arg Asn Gln Val Val Cys Val Val Gly Gly Gly Asn Thr Ala Val Glu

145	Glu	Ala	Leu	Tyr	Leu	150	Ala	Asn	Ile	Ala	Lys	155	Glu	Val	His	Leu	Ile	His	160
					165						170							175	
Arg	Arg	Asp	Lys	Leu	Arg	Ser	Glu	Lys	Ile	Leu	Gln	Asp	Lys	Leu	Phe				
			180					185				190							
Asp	Lys	Ala	Glu	Asn	Gly	Asn	Val	His	Leu	His	Trp	Asn	Thr	Thr	Leu				
		195					200				205								
Asp	Glu	Val	Leu	Gly	Asp	Ala	Ser	Gly	Val	Thr	Gly	Val	Arg	Leu	Lys				
	210				215						220								
Ser	Thr	Ile	Asp	Gly	Ser	Thr	Ser	Glu	Leu	Ser	Leu	Ala	Gly	Val	Phe				
225					230					235					240				
Ile	Ala	Ile	Gly	His	Lys	Pro	Asn	Thr	Asp	Leu	Phe	Gln	Gly	Gln	Leu				
			245						250					255					
Glu	Met	Arg	Asp	Gly	Tyr	Leu	Arg	Ile	His	Gly	Gly	Ser	Glu	Gly	Asn				
			260					265					270						
Ala	Thr	Gln	Thr	Ser	Ile	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Ala				
		275					280					285							
Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ala	Gly	Cys	Met				
	290				295						300								
Ala	Ala	Leu	Asp	Ala	Glu	Lys	Tyr	Leu	Asp	Asp	His								
305					310					315									

<210> 262
 <211> 316
 <212> PRT
 <213> Pseudomonas aeruginosa

<400> 262

Met	Pro	Asp	Thr	Leu	Arg	His	Ala	Arg	Val	Ile	Ile	Leu	Gly	Ser	Gly				
1				5					10					15					
Pro	Ala	Gly	Tyr	Ser	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys				
			20					25					30						
Pro	Leu	Leu	Ile	Thr	Gly	Met	Gln	Ala	Gly	Gly	Gln	Leu	Thr	Thr	Thr				
	35					40					45								
Thr	Glu	Val	Asp	Asn	Trp	Pro	Gly	Asp	Pro	His	Gly	Leu	Thr	Gly	Pro				
	50				55						60								
Ala	Leu	Met	Gln	Arg	Met	Gln	Glu	His	Ala	Glu	Arg	Phe	Glu	Thr	Glu				
65				70				75							80				
Ile	Val	Phe	Asp	His	Ile	His	Ala	Val	Asp	Leu	Ala	Gly	Lys	Pro	Phe				
			85					90					95						
Thr	Leu	Arg	Gly	Asp	Asn	Gly	Thr	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Val				
		100					105						110						
Ala	Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Gln	Ala				
	115					120					125								
Phe	Met	Gly	Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe				
	130				135						140								
Tyr	Arg	Asn	Arg	Glu	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala	Val				
145				150				155							160				
Glu	Glu	Ala	Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Ser	Arg	Val	Thr	Leu	Val				
			165					170						175					
His	Arg	Arg	Glu	Thr	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Gln	Asp	Lys	Leu				
		180					185					190							
Gln	Ala	Arg	Val	Ala	Glu	Gly	Lys	Ile	Val	Leu	Lys	Leu	Asn	Ala	Glu				
	195					200						205							
Val	Asp	Glu	Val	Leu	Gly	Asp	Thr	Met	Gly	Val	Thr	Gly	Val	Arg	Leu				
	210				215						220								
Lys	Thr	Arg	Asp	Gly	Gly	Ser	Glu	Glu	Ile	Ala	Val	Asp	Gly	Met	Phe				
225					230					235					240				
Val	Ala	Ile	Gly	His	Thr	Pro	Asn	Thr	Ser	Leu	Phe	Glu	Gly	Gln	Leu				
			245					250						255					
Ala	Leu	Lys	Asp	Gly	Tyr	Leu	Val	Val	Asn	Gly	Gly	Arg	Glu	Gly	Asn				
		260					265					270							
Ala	Thr	Ala	Thr	Asn	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Ala				
	275					280						285							
Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ala	Gly	Cys	Met				
290					295						300								

Ala Ala Leu Asp Val Glu Arg Tyr Leu Asp Ser Leu
305 310 315

<210> 263
<211> 345
<212> PRT
<213> *Pyrococcus abyssi*

<400> 263
Met Leu Leu Asn Ile His Gln Glu Ser Tyr Val Glu Val Val Lys Met
1 5 10 15
Phe Ser Leu Gly Gly Leu Gly Lys Ser Arg Val Asp Glu Ser Lys Val
20 25 30
Trp Asp Val Ile Ile Ile Gly Ala Gly Pro Ala Gly Tyr Thr Ala Ala
35 40 45
Ile Tyr Ala Ala Arg Phe Gly Leu Asp Thr Ile Ile Ile Thr Lys Asp
50 55 60
Leu Gly Gly Asn Met Ala Ile Thr Asp Leu Ile Glu Asn Tyr Pro Gly
65 70 75 80
Phe Pro Glu Gly Ile Ser Gly Ser Glu Leu Ala Lys Arg Met Tyr Glu
85 90 95
His Val Lys Lys Tyr Gly Val Asp Val Ile Phe Asp Glu Val Val Arg
100 105 110
Ile Asp Pro Ala Glu Cys Ala Tyr Tyr Glu Gly Pro Cys Gln Phe Glu
115 120 125
Val Lys Thr Ala Asn Gly Lys Glu Tyr Lys Gly Lys Thr Ile Ile Ile
130 135 140
Ala Val Gly Ala Glu Pro Arg Lys Leu His Val Pro Gly Glu Lys Glu
145 150 155 160
Phe Thr Gly Arg Gly Val Ser Tyr Cys Ala Thr Cys Asp Gly Pro Leu
165 170 175
Phe Val Gly Lys Glu Val Ile Val Val Gly Gly Gly Asn Thr Ala Leu
180 185 190
Gln Glu Ala Leu Tyr Leu His Ser Ile Gly Val Lys Val Thr Leu Val
195 200 205
His Arg Arg Asp Lys Phe Arg Ala Asp Lys Ile Leu Gln Asp Arg Leu
210 215 220
Lys Gln Ala Gly Ile Pro Thr Ile Leu Asn Thr Val Val Thr Glu Ile
225 230 235 240
Arg Gly Thr Asn Lys Val Glu Ser Val Val Leu Lys Asn Val Lys Thr
245 250 255
Gly Glu Thr Phe Glu Lys Lys Val Asp Gly Val Phe Ile Phe Ile Gly
260 265 270
Tyr Glu Pro Lys Thr Asp Phe Val Lys His Leu Gly Ile Thr Asp Glu
275 280 285
Tyr Gly Tyr Ile Lys Val Asp Met Tyr Met Arg Thr Lys Val Pro Gly
290 295 300
Ile Phe Ala Ala Gly Asp Ile Thr Asn Val Phe Lys Gln Ile Ala Val
305 310 315 320
Ala Val Gly Gln Gly Ala Ile Ala Ala Asn Ser Ala Lys Glu Phe Ile
325 330 335
Glu Ser Trp Asn Gly Lys Ser Ile Glu
340 345

<210> 264
<211> 334
<212> PRT
<213> *Rickettsia prowazekii*

<400> 264
Met Tyr Asn Thr Asp Ile Val Ile Ile Gly Ser Gly Pro Val Gly Leu
1 5 10 15
Phe Ala Val Phe Gln Ala Gly Met Leu Gly Met Lys Cys His Val Ile
20 25 30
Asp Ala Gln Glu Val Ile Gly Gly Gln Cys Ile Thr Leu Tyr Pro Glu

Asp	Glu	Leu	Arg	Ala	Gln	Arg	Ile	Leu	Gln	Asp	Arg	Ala	Phe	Lys	Asn
			180					185					190		
Asp	Lys	Ile	Asp	Phe	Ile	Trp	Ser	His	Thr	Leu	Lys	Ser	Ile	Asn	Glu
		195					200					205			
Lys	Asp	Gly	Lys	Val	Gly	Ser	Val	Thr	Leu	Thr	Ser	Thr	Lys	Asp	Gly
	210					215					220				
Ser	Glu	Glu	Thr	His	Glu	Ala	Asp	Gly	Val	Phe	Ile	Tyr	Ile	Gly	Met
	225				230					235					240
Lys	Pro	Leu	Thr	Ala	Pro	Phe	Lys	Asp	Leu	Gly	Ile	Thr	Asn	Asp	Val
				245					250					255	
Gly	Tyr	Ile	Val	Thr	Lys	Asp	Asp	Met	Thr	Thr	Ser	Val	Pro	Gly	Ile
			260					265					270		
Phe	Ala	Ala	Gly	Asp	Val	Arg	Asp	Lys	Gly	Leu	Arg	Gln	Ile	Val	Thr
		275					280					285			
Ala	Thr	Gly	Asp	Gly	Ser	Ile	Ala	Ala	Gln	Ser	Thr	Ser	Gly	Tyr	Ile
	290					295					300				
Glu	His	Leu	Asn	Asp	Gln	Ala									
305					310										

<210> 266

<211> 326

<212> PRT

<213> Streptomyces coelicolor

<400> 266

Met	Ser	Thr	Ala	Lys	Asp	Val	Arg	Asp	Val	Ile	Val	Ile	Gly	Ser	Gly
1				5					10					15	
Pro	Ala	Gly	Tyr	Thr	Ala	Ala	Leu	Tyr	Thr	Ala	Arg	Ala	Ser	Leu	Asn
			20					25					30		
Pro	Leu	Val	Phe	Gly	Gly	Ala	Ile	Phe	Val	Gly	Gly	Ser	Leu	Thr	Thr
		35					40					45			
Thr	Thr	Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Val	Gln	Gly
	50					55					60				
Pro	Glu	Leu	Met	Glu	Asn	Met	Arg	Ala	Gln	Ala	Glu	Arg	Phe	Gly	Ala
	65				70				75						80
Glu	Met	Val	Asp	Asp	Asp	Ile	Val	Ala	Val	Asp	Leu	Thr	Gly	Asp	Val
			85						90					95	
Lys	Thr	Val	Thr	Asp	Thr	Ala	Gly	Thr	Val	His	Arg	Ala	Arg	Thr	Val
			100					105					110		
Ile	Val	Ala	Thr	Gly	Ser	Gly	Tyr	Arg	Lys	Leu	Gly	Val	Pro	Lys	Glu
		115					120					125			
Asp	Glu	Leu	Ser	Gly	Arg	Gly	Val	Ser	Trp	Cys	Ala	Thr	Cys	Asp	Gly
	130					135					140				
Phe	Phe	Phe	Arg	Asp	Arg	Asp	Ile	Val	Val	Val	Gly	Gly	Gly	Asp	Thr
	145				150					155					160
Ala	Met	Glu	Glu	Ala	Thr	Phe	Leu	Thr	Arg	Phe	Ala	Arg	Ser	Val	Thr
				165					170					175	
Val	Val	His	Arg	Arg	Ser	Ala	Leu	Arg	Ala	Ser	Gln	Val	Met	Gln	Asn
			180					185					190		
Arg	Ala	Phe	Ser	Glu	Asp	Lys	Ile	Ser	Leu	Ala	Phe	Asp	Ser	Glu	Val
		195				200						205			
Ala	Thr	Leu	His	Glu	Glu	Asn	Gly	Met	Leu	Ser	Gly	Met	Thr	Leu	Arg
	210					215					220				
Asp	Thr	Leu	Thr	Gly	Glu	Thr	Arg	Glu	Leu	Ala	Thr	Thr	Gly	Leu	Phe
	225				230					235					240
Ile	Ala	Ile	Gly	His	Asp	Pro	Arg	Thr	Glu	Leu	Phe	Lys	Gly	Gln	Leu
				245					250					255	
His	Leu	Asp	Ser	Glu	Gly	Tyr	Leu	Met	Val	Glu	Ser	Pro	Ser	Thr	Arg
		260						265					270		
Thr	Asn	Val	Pro	Gly	Val	Phe	Gly	Ala	Gly	Asp	Val	Val	Asp	His	Thr
	275						280						285		
Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Ser	Ser	Gly	Cys	Ala	Ala	Ala	Leu
	290					295					300				
Asp	Ala	Glu	Arg	Tyr	Leu	Ala	Ala	Arg	Ser	Asp	Thr	Ser	Val	Ser	Ala
	305				310					315					320
Glu	Val	Val	Ala	Val	Ala										

<210> 267
 <211> 558
 <212> PRT
 <213> Streptomyces coelicolor

<400> 267

Met	Ala	Gln	Ala	Asp	Gly	Glu	Thr	Arg	Thr	Val	Ile	Met	Thr	Val	Asp
1				5					10					15	
Asp	Asp	Pro	Gly	Val	Ser	Arg	Ala	Val	Ala	Arg	Asp	Leu	Arg	Arg	Arg
			20					25					30		
Tyr	Gly	Ala	Thr	Tyr	Arg	Ile	Val	Arg	Ala	Glu	Ser	Gly	Glu	Ser	Ala
		35					40					45			
Leu	Asp	Ala	Leu	Arg	Glu	Leu	Lys	Leu	Arg	Gly	Asp	Leu	Val	Ala	Val
	50					55					60				
Ile	Leu	Ala	Asp	Tyr	Arg	Met	Pro	Gln	Met	Asn	Gly	Ile	Glu	Phe	Leu
65					70					75					80
Glu	Gln	Ala	Leu	Asp	Val	Tyr	Pro	Gly	Ala	Arg	Arg	Val	Leu	Leu	Thr
				85					90					95	
Ala	Tyr	Ala	Asp	Thr	Asn	Ala	Ala	Ile	Asp	Ala	Ile	Asn	Val	Val	Asp
			100					105					110		
Leu	Asp	His	Tyr	Leu	Leu	Lys	Pro	Trp	Asp	Pro	Pro	Glu	Glu	Lys	Leu
		115					120					125			
Tyr	Pro	Val	Leu	Asp	Asp	Leu	Leu	Gln	Ala	Trp	Arg	Ala	Gly	Asp	His
	130					135					140				
Arg	Pro	Val	Pro	Ser	Thr	Lys	Val	Val	Gly	His	Arg	Trp	Ser	Ala	Arg
145					150					155					160
Ser	Ser	Glu	Val	Arg	Glu	Phe	Leu	Ala	Arg	Asn	Gln	Val	Pro	Tyr	Arg
				165					170					175	
Trp	Tyr	Ser	Ser	Asp	Glu	Pro	Glu	Gly	Arg	Arg	Leu	Leu	Ser	Ala	Ala
			180					185					190		
Gly	Gln	Asp	Gly	Gln	Arg	Leu	Pro	Val	Val	Ile	Thr	Pro	Asp	Gly	Thr
		195					200					205			
Pro	Leu	Val	Glu	Pro	Glu	Ala	Pro	Glu	Leu	Ala	Ala	Arg	Val	Gly	Leu
	210					215					220				
Ala	Thr	Thr	Pro	Thr	Ser	Asp	Phe	Tyr	Asp	Leu	Val	Val	Ile	Gly	Gly
225					230					235					240
Gly	Pro	Ala	Gly	Leu	Gly	Ala	Ala	Val	Tyr	Gly	Ala	Ser	Glu	Gly	Leu
			245						250					255	
Arg	Thr	Val	Leu	Val	Glu	Arg	Ser	Ala	Thr	Gly	Gly	Gln	Ala	Gly	Gln
			260					265					270		
Ser	Ser	Arg	Ile	Glu	Asn	Tyr	Leu	Gly	Phe	Pro	Asp	Gly	Val	Ser	Gly
		275				280						285			
Gly	Gln	Leu	Thr	Glu	Arg	Ala	Arg	Arg	Gln	Ala	Ala	Arg	Phe	Gly	Ala
	290					295					300				
Glu	Ile	Leu	Thr	Ala	Arg	Glu	Val	Thr	Gly	Leu	Glu	Ala	Asn	Gly	Ala
305					310					315					320
Ala	Arg	Val	Val	Arg	Phe	Ser	Asp	Gly	Ser	Ala	Ile	Ala	Ala	His	Ser
			325						330					335	
Val	Ile	Leu	Ala	Thr	Gly	Val	Ser	Tyr	Arg	Gln	Leu	Thr	Ala	Pro	Gly
		340						345					350		
Thr	Glu	Asp	Leu	Ala	Gly	Cys	Gly	Val	Phe	Tyr	Gly	Ser	Ala	Leu	Thr
	355						360					365			
Glu	Ala	Ala	Ser	Cys	Gln	Gly	His	Asp	Val	Tyr	Ile	Val	Gly	Gly	Ala
	370					375					380				
Asn	Ser	Ala	Gly	Gln	Ala	Ala	Met	Tyr	Leu	Ala	Arg	Gly	Ala	Lys	Ser
385					390					395					400
Val	Thr	Leu	Leu	Val	Arg	Gly	Gly	Ser	Leu	Glu	Ala	Ser	Met	Ser	Tyr
			405						410					415	
Tyr	Leu	Ile	Gln	Gln	Ile	Glu	Glu	Thr	Pro	Asn	Ile	Arg	Val	Arg	Cys
			420					425					430		
Gly	Thr	Leu	Val	Glu	Gly	Ala	His	Gly	Asp	Gly	His	Leu	Glu	Arg	Leu
	435						440					445			
Thr	Leu	Arg	Asp	Ala	Ala	Ser	Gly	Ala	Thr	Glu	Leu	Val	Asp	Ala	Gln
	450					455					460				

Trp	Leu	Phe	Val	Phe	Ile	Gly	Ala	Ala	Pro	Leu	Thr	Asp	Trp	Leu	Asp
465					470					475					480
Gly	Thr	Val	Leu	Arg	Asp	Glu	Arg	Gly	Phe	Ile	Leu	Ala	Gly	Pro	Asp
				485					490						495
Leu	Thr	Pro	Asp	Gly	Arg	Pro	Pro	Ala	Gly	Trp	Glu	Leu	Asp	Arg	Pro
			500					505					510		
Pro	Tyr	His	Leu	Glu	Thr	Ser	Val	Pro	Gly	Val	Phe	Val	Ala	Gly	Asp
		515					520					525			
Ala	Arg	Ala	Glu	Ser	Ala	Lys	Arg	Val	Ala	Ser	Ala	Val	Gly	Glu	Gly
	530					535					540				
Ala	Met	Ala	Val	Met	Leu	Val	His	Arg	Tyr	Leu	Glu	Gln	Ser		
545					550					555					

<210> 268
 <211> 303
 <212> PRT
 <213> Streptococcus pneumoniae

Met	Tyr	Asp	Thr	Ile	Ile	Ile	Gly	Ala	Gly	Pro	Ala	Gly	Met	Thr	Ala
1				5					10					15	
Ala	Leu	Tyr	Ala	Ala	Arg	Ser	Asn	Leu	Lys	Val	Ala	Leu	Ile	Glu	Gly
			20				25					30			
Gly	Leu	Pro	Gly	Gly	Gln	Met	Asn	Asn	Thr	Ser	Asp	Ile	Glu	Asn	Tyr
	35					40					45				
Pro	Gly	Tyr	Ala	Asn	Ile	Ser	Gly	Pro	Glu	Leu	Ala	Glu	Lys	Met	Phe
	50					55					60				
Glu	Pro	Leu	Glu	Asn	Leu	Gly	Val	Glu	His	Ile	Tyr	Gly	Tyr	Val	Glu
65				70					75						80
Asn	Val	Glu	Asp	His	Gly	Asp	Phe	Lys	Lys	Val	Met	Thr	Asp	Asp	Gln
			85					90					95		
Thr	Tyr	Glu	Thr	Arg	Thr	Val	Ile	Val	Ala	Thr	Gly	Ser	Lys	His	Arg
			100					105					110		
Pro	Leu	Gly	Val	Pro	Gly	Glu	Glu	Glu	Leu	Asn	Ser	Arg	Gly	Val	Ser
	115					120						125			
Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe	Arg	Asp	Gln	Asp	Leu	Leu
	130					135					140				
Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu	Glu	Ala	Leu	Phe	Leu	Thr
145					150				155						160
Arg	Phe	Ala	Lys	Thr	Val	Thr	Ile	Val	His	Arg	Arg	Asp	Gln	Leu	Arg
			165					170						175	
Ala	Gln	Lys	Val	Leu	Gln	Asp	Arg	Ala	Phe	Ala	Asn	Glu	Lys	Ile	Ser
			180					185					190		
Phe	Ile	Trp	Asp	Ser	Val	Val	Arg	Glu	Ile	Lys	Gly	Glu	Asn	Arg	Val
	195						200					205			
Glu	Ser	Val	Val	Phe	Glu	Asn	Val	Lys	Thr	Gly	Gln	Val	Thr	Glu	Gln
	210					215					220				
Ala	Phe	Gly	Gly	Val	Phe	Ile	Tyr	Val	Gly	Leu	Asp	Pro	Leu	Ser	Asp
225					230					235					240
Phe	Val	Lys	Glu	Leu	Asn	Ile	Gln	Asp	Gln	Ala	Gly	Trp	Ile	Val	Thr
			245					250						255	
Asp	Asn	His	Met	Lys	Thr	Ala	Val	Asp	Gly	Ile	Phe	Ala	Val	Gly	Asp
			260					265					270		
Val	Arg	Leu	Lys	Asp	Leu	Arg	Gln	Val	Thr	Thr	Ala	Val	Gly	Asp	Gly
	275						280					285			
Ala	Ile	Ala	Gly	Gln	Glu	Ala	Tyr	Lys	Phe	Ile	Thr	Glu	His	Ser	
290						295					300				

<210> 269
 <211> 330
 <212> PRT
 <213> Streptococcus pyogenes

<400> 269
 Met Lys Asp Lys Ala Tyr Asp Ile Thr Ile Ile Gly Gly Gly Pro Ile

1				5				10					15			
Gly	Leu	Phe	Ala	Ala	Phe	Tyr	Ala	Gly	Leu	Arg	Gly	Val	Thr	Val	Lys	
			20					25					30			
Ile	Ile	Glu	Ser	Leu	Ser	Glu	Leu	Gly	Gly	Gln	Pro	Ala	Ile	Leu	Tyr	
		35					40					45				
Pro	Glu	Lys	Met	Ile	Tyr	Asp	Ile	Pro	Ala	Tyr	Pro	Ser	Leu	Thr	Gly	
	50				55				60							
Val	Glu	Leu	Thr	Glu	Asn	Leu	Ile	Lys	Gln	Leu	Ser	Arg	Phe	Glu	Asp	
65				70					75					80		
Arg	Thr	Thr	Ile	Cys	Leu	Lys	Glu	Glu	Val	Leu	Thr	Phe	Asp	Lys	Val	
			85					90					95			
Lys	Gly	Gly	Phe	Ser	Ile	Arg	Thr	Asn	Lys	Ala	Glu	His	Phe	Ser	Lys	
			100					105					110			
Ala	Ile	Ile	Ile	Ala	Cys	Gly	Asn	Gly	Ala	Phe	Ala	Pro	Arg	Thr	Leu	
		115					120					125				
Gly	Leu	Glu	Ser	Glu	Glu	Asn	Phe	Ala	Asp	His	Asn	Leu	Phe	Tyr	Asn	
	130					135					140					
Val	His	Gln	Leu	Asp	Gln	Phe	Ala	Gly	Gln	Lys	Val	Val	Ile	Cys	Gly	
145				150					155					160		
Gly	Gly	Asp	Ser	Ala	Val	Asp	Trp	Ala	Leu	Ala	Leu	Glu	Asp	Ile	Ala	
			165					170					175			
Glu	Ser	Val	Thr	Val	Val	His	Arg	Arg	Asp	Ala	Phe	Arg	Ala	His	Glu	
		180						185					190			
His	Ser	Val	Glu	Leu	Leu	Lys	Ala	Ser	Thr	Val	Asn	Leu	Leu	Thr	Pro	
	195						200					205				
Tyr	Val	Pro	Lys	Ala	Leu	Lys	Gly	Ile	Gly	Asn	Leu	Ala	Glu	Lys	Leu	
	210					215					220					
Val	Ile	Gln	Lys	Val	Lys	Glu	Asp	Glu	Val	Leu	Glu	Leu	Glu	Leu	Asp	
225				230					235					240		
Ser	Leu	Ile	Val	Ser	Phe	Gly	Phe	Ser	Thr	Ser	Asn	Lys	Asn	Leu	Lys	
			245					250					255			
Asn	Trp	Asn	Leu	Asp	Tyr	Lys	Arg	Ser	Ser	Ile	Thr	Val	Ser	Pro	Leu	
		260						265				270				
Phe	Gln	Thr	Ser	Gln	Glu	Gly	Ile	Phe	Ala	Ile	Gly	Asp	Ala	Ala	Ala	
		275					280					285				
Tyr	Asn	Gly	Lys	Val	Asp	Leu	Ile	Ala	Thr	Gly	Phe	Gly	Glu	Ala	Pro	
	290					295					300					
Thr	Ala	Val	Asn	Gln	Ala	Ile	Asn	Tyr	Ile	Tyr	Pro	Asp	Arg	Asp	Asn	
305				310					315					320		
Arg	Val	Val	His	Ser	Thr	Ser	Leu	Ile	Asp							
				325					330							

<210> 270
 <211> 325
 <212> PRT
 <213> Sulfolobus solfataricus

<400> 270																
Met	Pro	Leu	Lys	Thr	Tyr	Asp	Thr	Ile	Ile	Val	Gly	Ala	Gly	Ile	Ala	
1				5					10					15		
Gly	Leu	Ser	Ala	Ala	Leu	Tyr	Ser	Ser	Arg	Gln	Lys	Leu	Ser	Thr	Leu	
			20					25					30			
Val	Leu	Ser	Lys	Asp	Leu	Gly	Gly	Gln	Leu	Thr	Leu	Thr	Asp	Leu	Ile	
		35				40					45					
Glu	Asn	Tyr	Pro	Gly	Ile	Glu	Ser	Thr	Gly	Gly	Leu	Thr	Leu	Ala	Gln	
	50					55					60					
Lys	Ile	Glu	Lys	Gln	Ala	Lys	Lys	Phe	Gly	Ala	Glu	Phe	Ile	Tyr	Gly	
65				70					75					80		
Glu	Glu	Val	Lys	Glu	Ile	Ala	Gln	Glu	Ser	Asp	Leu	Phe	Ile	Ile	Lys	
			85					90					95			
Gly	Ile	Lys	Gly	Glu	Tyr	Ala	Gly	Arg	Ala	Leu	Ile	Leu	Ala	Phe	Gly	
			100					105					110			
Lys	Thr	Pro	Arg	Glu	Ile	Asn	Val	Pro	Gly	Glu	Gln	Glu	Phe	Lys	Gly	
	115					120						125				
Lys	Gly	Val	Ser	Tyr	Cys	Ala	Ile	Cys	Asp	Ala	Ala	Phe	Phe	Lys	Gly	
	130					135					140					

Lys Pro Ala Ala Val Ile Gly Glu Gly Glu Pro Gly Ile Glu Ala Ile
 145 150 155 160
 Glu Leu Leu Ser Asn Tyr Ala Asn Pro Ala Tyr Tyr Ile Thr Ser Ser
 165 170 175
 Ser Tyr Leu Ala Gly Glu Glu Glu Ile Val Lys Asn Val Val Asn Lys
 180 185 190
 Pro Thr Val Lys Ile Leu Thr Ser Ser Arg Val Leu Glu Ile Arg Gly
 195 200 205
 Asn Ser Lys Val Glu Glu Leu Val Ile Lys Arg Gly Asp Glu Ile Leu
 210 215 220
 Gln Leu Lys Val Asp Gly Val Ile Ile Glu Met Gly Tyr Thr Leu Lys
 225 230 235 240
 Thr Glu Phe Leu Lys Gly Phe Val Glu Leu Asn Glu Lys Gly Glu Ile
 245 250 255
 Ile Val Asp Glu Leu Gly Arg Thr Ser Arg Glu Gly Val Phe Ala Ala
 260 265 270
 Gly Asp Val Thr Gln Thr Pro Tyr Lys Gln Ala Val Val Ala Ala Ala
 275 280 285
 Glu Gly Val Lys Ala Ala Leu Ser Ala Tyr Asn Tyr Ile Arg Ser Lys
 290 295 300
 Arg Gly Leu Pro Pro Val Thr Val Asp Trp Lys Ala Glu Lys Lys Lys
 305 310 315 320
 Val Ser Phe Arg Leu
 325

<210> 271
 <211> 323
 <212> PRT
 <213> Sulfolobus solfataricus

<400> 271
 Met Ser Leu Leu Pro Arg Thr Thr Ser Val Lys Pro Gly Glu Lys Phe
 1 5 10 15
 Asp Val Ile Ile Val Gly Leu Gly Pro Ala Ala Tyr Gly Ala Ala Leu
 20 25 30
 Tyr Ser Ala Arg Tyr Met Leu Lys Thr Leu Val Ile Gly Glu Thr Pro
 35 40 45
 Gly Gly Gln Leu Thr Glu Ala Gly Ile Val Asp Asp Tyr Leu Gly Leu
 50 55 60
 Ile Glu Ile Gln Ala Ser Asp Met Ile Lys Val Phe Asn Lys His Ile
 65 70 75 80
 Glu Lys Tyr Glu Val Pro Val Leu Leu Asp Ile Val Glu Lys Ile Glu
 85 90 95
 Asn Arg Gly Asp Glu Phe Val Val Lys Thr Lys Arg Lys Gly Glu Phe
 100 105 110
 Lys Ala Asp Ser Val Ile Leu Gly Ile Gly Val Lys Arg Arg Lys Leu
 115 120 125
 Gly Val Pro Gly Glu Gln Glu Phe Ala Gly Arg Gly Ile Ser Tyr Cys
 130 135 140
 Ser Val Cys Asp Ala Pro Leu Phe Lys Asn Arg Val Val Ala Val Ile
 145 150 155 160
 Gly Gly Gly Asp Ser Ala Leu Glu Gly Ala Glu Ile Leu Ser Ser Tyr
 165 170 175
 Ser Thr Lys Val Tyr Leu Ile His Arg Arg Asp Thr Phe Lys Ala Gln
 180 185 190
 Pro Ile Tyr Val Glu Thr Val Lys Lys Lys Pro Asn Val Glu Phe Val
 195 200 205
 Leu Asn Ser Val Val Lys Glu Ile Lys Gly Asp Lys Val Val Lys Gln
 210 215 220
 Val Val Val Glu Asn Leu Lys Thr Gly Glu Ile Lys Glu Leu Asn Val
 225 230 235 240
 Asn Gly Val Phe Ile Glu Ile Gly Phe Asp Pro Pro Thr Asp Phe Ala
 245 250 255
 Lys Ser Asn Gly Ile Glu Thr Asp Thr Asn Gly Tyr Ile Lys Val Asp
 260 265 270
 Glu Trp Met Arg Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Cys

275 280 285
 Thr Ser Ala Trp Leu Gly Phe Arg Gln Val Ile Thr Ala Val Ala Gln
 290 295 300
 Gly Ala Val Ala Ala Thr Ser Ala Tyr Arg Tyr Val Thr Glu Lys Lys
 305 310 315 320
 Gly Lys Lys

<210> 272
 <211> 332
 <212> PRT
 <213> *Sulfolobus solfataricus*

<400> 272
 Met Asp Glu Tyr Asp Ile Val Val Ile Gly Gly Gly Pro Val Gly Leu
 1 5 10 15
 Phe Gly Thr Phe Tyr Ala Gly Leu Arg Asp Met Lys Thr Leu Leu Ile
 20 25 30
 Asp Ala Gln Asp Glu Leu Gly Gly Gln Leu Val Ser Leu Tyr Pro Glu
 35 40 45
 Lys Ile Val Tyr Asp Val Gly Gly Leu Ala Gly Ile Gln Ala Tyr Glu
 50 55 60
 Leu Ala Gln Arg Leu Ile Glu Gln Ala Lys Met Phe Gly Pro Asp Ile
 65 70 75 80
 Lys Val Asn Glu Leu Ala Asp Met Ile Glu Lys Thr Asn Asp Asn Met
 85 90 95
 Trp Ile Val Lys Thr Asp Lys Ala Thr Tyr Lys Thr Lys Thr Ile Phe
 100 105 110
 Ile Ala Ala Gly Ile Gly Lys Ile Val Pro Ser Arg Leu Gly Ala Lys
 115 120 125
 Gly Glu Ile Glu Tyr Glu Asn Arg Gly Val Tyr Tyr Thr Val Arg Arg
 130 135 140
 Lys Lys Asp Phe Glu Gly Lys Arg Val Leu Ile Val Gly Gly Gly Asp
 145 150 155 160
 Ser Ala Val Asp Trp Ala Leu Thr Leu Ala Pro Val Ala Lys Ser Val
 165 170 175
 Thr Leu Ile His Arg Arg Asp Gln Phe Arg Ala His Glu Arg Ser Val
 180 185 190
 Lys Glu Leu Phe Arg Val Ala Asn Val Tyr Val Trp His Glu Leu Lys
 195 200 205
 Glu Val Lys Gly Asp Gly Asn Lys Val Thr Gln Ala Ile Ile Phe Asp
 210 215 220
 Asn Arg Thr Lys Glu Glu Lys Val Leu Asp Val Asp Ser Val Ile Ile
 225 230 235 240
 Ser Ile Gly Tyr Lys Gly Asp Leu Gly Asn Ile Pro Lys Trp Gly Val
 245 250 255
 Thr Met Lys Gly Arg Asp Ile Val Val Asn Gly Arg Met Glu Thr Asn
 260 265 270
 Leu Pro Gly Val Tyr Ala Gly Gly Asp Ile Val Gln Met Glu Gly Ser
 275 280 285
 Pro Lys Leu Ala Leu Ile Ala Val Gly Phe Ala His Ala Ala Ile Ala
 290 295 300
 Ile Ser Val Ala Lys Lys Tyr Val Glu Pro Asn Ala Ser Leu Phe Ala
 305 310 315 320
 Gly His Ser Ser Glu Met Asp Lys Phe Lys Pro Lys
 325 330

<210> 273
 <211> 324
 <212> PRT
 <213> *Rhizobium loti*

<400> 273
 Met Thr Thr Lys His Ala Pro Val Leu Ile Ile Gly Ser Gly Pro Ala
 1 5 10 15

Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Met Leu Lys Pro Met
 20 25 30
 Leu Val Ala Gly Leu Gln Gln Gly Gly Gln Leu Met Ile Thr Thr Asp
 35 40 45
 Val Glu Asn Tyr Pro Gly Phe Ala Asp Pro Ile Gln Gly Pro Trp Leu
 50 55 60
 Met Glu Gln Met Met Lys Gln Ala Glu His Val Gly Thr Asp Ile Ile
 65 70 75 80
 Asn Asp Ile Ile Thr Glu Val Asp Leu Asn Val Arg Pro Phe Arg Ala
 85 90 95
 Lys Gly Asp Ser Gly Thr Thr Tyr Thr Ala Asp Ala Leu Ile Ile Ala
 100 105 110
 Thr Gly Ala Gln Ala Lys Trp Leu Gly Ile Pro Thr Glu Gln Asp Phe
 115 120 125
 Met Gly Phe Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 130 135 140
 Arg Gly Lys Asp Val Ala Val Val Gly Gly Gly Asn Ser Ala Val Glu
 145 150 155 160
 Glu Ala Leu Tyr Leu Ser Asn Leu Ala Lys Ser Val Thr Val Ile His
 165 170 175
 Arg Arg Ser Asp Phe Arg Ala Glu Arg Ile Leu Arg Glu Arg Leu Leu
 180 185 190
 Gln Lys Asp Asn Val Arg Val Ile Trp Asp Thr Val Val Asp Glu Ile
 195 200 205
 Thr Gly Arg Pro Gly Lys Ala Pro Leu Pro Pro Ser Val Glu Gly Leu
 210 215 220
 Lys Leu Lys His Ala Val Thr Gly Ala Glu Thr His Leu Lys Val Asp
 225 230 235 240
 Gly Val Phe Val Ala Ile Gly His Ala Pro Ala Val Glu Leu Phe Val
 245 250 255
 Gly Lys Leu Lys Gln Lys Pro Asn Gly Tyr Leu Trp Thr Ala Pro Asn
 260 265 270
 Ser Thr Arg Thr Asp Val Pro Gly Val Phe Ala Ala Gly Asp Val Thr
 275 280 285
 Asp Asp Val Tyr Arg Gln Ala Val Thr Ala Ala Gly Leu Gly Cys Met
 290 295 300
 Ala Ala Leu Glu Ala Glu Lys Tyr Leu Ala Gly Ile Glu Val His Arg
 305 310 315 320
 Glu Ala Ala Glu

<210> 274
 <211> 343
 <212> PRT
 <213> Rhizobium loti

<400> 274
 Met Thr Gly Ile Ile Ser Thr Asp Val Leu Ile Val Gly Ala Gly Pro
 1 5 10 15
 Val Gly Leu Phe Ala Val Phe Glu Leu Gly Leu Phe Asp Met Lys Cys
 20 25 30
 His Leu Ile Asp Ile Leu Asp Lys Pro Gly Gly Gln Cys Ala Glu Leu
 35 40 45
 Tyr Pro Glu Lys Pro Ile Tyr Asp Ile Pro Gly Trp Pro Ser Ile Ser
 50 55 60
 Ala Gln Gly Leu Val Asp Lys Leu Leu Glu Gln Ile His Pro Phe Lys
 65 70 75 80
 Pro Asp Phe Thr Tyr Asn Arg Met Val Ser Ser Leu Glu Lys Leu Glu
 85 90 95
 Asp Gly Ser Phe Arg Val Thr Thr Asp Glu Asn Glu Val Phe Glu Ala
 100 105 110
 Lys Val Val Val Ile Ala Ala Gly Gly Gly Ser Phe Gln Pro Lys Arg
 115 120 125
 Pro Pro Ile Pro Gly Ile Glu Pro Tyr Glu Gly Lys Ser Val Phe Tyr
 130 135 140
 Ser Val Arg Arg Met Glu Asp Phe Arg Gly His Asp Leu Val Ile Val

145 150 155 160
 Gly Gly Gly Asp Ser Ala Leu Asp Trp Thr Leu Asn Leu Gln Pro Val
 165 170 175
 Ala Lys Ser Val Thr Leu Val His Arg Arg Pro Glu Phe Arg Ala Ala
 180 185 190
 Pro Asp Ser Val Asn Lys Met Tyr Ala Met Gln Glu Met Lys Gln Leu
 195 200 205
 Glu Phe Arg Val Gly Gln Val Thr Gly Leu Thr Gly Ala Asp Gly Gln
 210 215 220
 Leu Ser Ser Ala Thr Ile Lys Gly Gly Pro Asp Gly Asp Ile Glu Val
 225 230 235 240
 Pro Cys Thr Arg Met Leu Pro Phe Phe Gly Leu Thr Met Lys Leu Gly
 245 250 255
 Pro Ile Ala Glu Trp Gly Leu Asn Leu His Glu Asn Leu Ile Pro Val
 260 265 270
 Asp Thr Glu Lys Phe Gln Thr Ser Val Pro Gly Ile Phe Ala Val Gly
 275 280 285
 Asp Ile Asn Ser Tyr Pro Gly Lys Leu Lys Leu Ile Leu Ser Gly Phe
 290 295 300
 His Glu Val Ala Leu Met Ala Gln Ala Ala Lys Arg Ile Val Ser Pro
 305 310 315 320
 Gly Glu Arg Ile Val Phe Gln Tyr Thr Thr Ser Ser Thr Ser Leu Gln
 325 330 335
 Lys Lys Leu Gly Val Val Gly
 340

<210> 275
 <211> 15
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<220>
 <221> VARIANT
 <222> 9, 11
 <223> Xaa = Any Amino Acid

<400> 275
 Val His Asn Ile Val Thr Ile Ile Xaa Ser Xaa Pro Ala Ala His
 1 5 10 15

<210> 276
 <211> 104
 <212> PRT
 <213> *Staphylococcus aureus*

<400> 276
 Met Ala Ile Val Lys Val Thr Asp Ala Asp Phe Asp Ser Lys Val Glu
 1 5 10 15
 Ser Gly Val Gln Leu Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys
 20 25 30
 Lys Met Ile Ala Pro Val Leu Glu Glu Leu Ala Ala Asp Tyr Glu Gly
 35 40 45
 Lys Ala Asp Ile Leu Lys Leu Asp Val Asp Glu Asn Pro Ser Thr Ala
 50 55 60
 Ala Lys Tyr Glu Val Met Ser Ile Pro Thr Leu Ile Val Phe Lys Asp
 65 70 75 80
 Gly Gln Pro Val Asp Lys Val Val Gly Phe Gln Pro Lys Glu Asn Leu
 85 90 95
 Ala Glu Val Leu Asp Lys His Leu
 100

<210> 277
 <211> 92
 <212> PRT

<213> Staphylococcus xylosus

<400> 277

```
Met Ala Glu Gln Val Asp Phe Asp Ile Ala Ile Ile Gly Ala Gly Pro
 1          5          10          15
Ala Gly Met Thr Ala Ala Val Tyr Ala Ser Arg Ala Asn Leu Ser Thr
          20          25          30
Val Met Ile Glu Arg Gly Met Pro Gly Gly Gln Met Ala Asn Thr Glu
          35          40          45
Glu Val Glu Asn Phe Pro Gly Phe Glu Met Val Thr Gly Pro Asp Leu
          50          55          60
Ser Thr Lys Met Phe Glu His Ala Lys Lys Phe Gly Ala Lys Tyr Gln
65          70          75          80
Tyr Gly Asp Ile Lys Ser Ile Glu Asp Lys Gly Ser
          85          90
```

<210> 278

<211> 319

<212> PRT

<213> Thermoplasma acidophilum

<400> 278

```
Met Glu Phe Asn Leu His Ala Val Ser Ser Glu Glu Lys Glu Arg Asp
 1          5          10          15
Phe Asp Val Val Ile Val Gly Ala Gly Ala Ala Gly Phe Ser Ala Ala
          20          25          30
Val Tyr Ala Ala Arg Ser Gly Phe Ser Val Ala Ile Leu Asp Lys Ala
          35          40          45
Val Ala Gly Gly Leu Thr Ala Glu Ala Pro Leu Val Glu Asn Tyr Leu
          50          55          60
Gly Phe Lys Ser Ile Val Gly Ser Glu Leu Ala Lys Leu Phe Ala Asp
65          70          75          80
His Ala Ala Asn Tyr Ala Lys Ile Arg Glu Gly Val Glu Val Arg Ser
          85          90          95
Ile Lys Lys Thr Gln Gly Gly Phe Asp Ile Glu Thr Asn Asp Asp Thr
          100          105          110
Tyr His Ala Lys Tyr Val Ile Ile Thr Thr Gly Thr Thr His Lys His
          115          120          125
Leu Gly Val Lys Gly Glu Ser Glu Tyr Phe Gly Lys Gly Thr Ser Tyr
          130          135          140
Cys Ser Thr Cys Asp Gly Tyr Leu Phe Lys Gly Lys Arg Val Val Thr
145          150          155          160
Ile Gly Gly Gly Asn Ser Gly Ala Ile Ala Ala Ile Ser Met Ser Glu
          165          170          175
Tyr Val Lys Asn Val Thr Ile Ile Glu Tyr Met Pro Lys Tyr Met Cys
          180          185          190
Glu Asn Ala Tyr Val Gln Glu Ile Lys Lys Arg Asn Ile Pro Tyr Ile
          195          200          205
Met Asn Ala Gln Val Thr Glu Ile Val Gly Asp Gly Lys Lys Val Thr
          210          215          220
Gly Val Lys Tyr Lys Asp Arg Thr Thr Gly Glu Glu Lys Leu Ile Glu
225          230          235          240
Thr Asp Gly Val Phe Ile Tyr Val Gly Leu Ile Pro Gln Thr Ser Phe
          245          250          255
Leu Lys Asp Ser Gly Val Lys Leu Asp Glu Arg Gly Tyr Ile Val Val
          260          265          270
Asp Ser Arg Gln Arg Thr Ser Val Pro Gly Val Tyr Ala Ala Gly Asp
          275          280          285
Val Thr Ser Gly Asn Phe Ala Gln Ile Ala Ser Ala Val Gly Asp Gly
          290          295          300
Cys Lys Ala Ala Leu Ser Leu Tyr Ser Asp Ser Ile Ser Lys Lys
305          310          315
```

<210> 279

<211> 317

<212> PRT

<213> Thermotoga maritima

<400> 279

Met Val Phe Phe Asp Thr Gly Ser Leu Lys Lys Lys Glu Ile Lys Asp
1 5 10 15
Lys Tyr Asp Ile Val Val Val Gly Gly Gly Pro Ala Gly Leu Thr Ser
20 25 30
Ala Ile Tyr Ala Arg Arg Ala Gly Leu Ser Val Leu Val Glu Lys
35 40 45
Ala Ile Glu Gly Gly Tyr Val Asn Leu Thr His Leu Val Glu Asn Tyr
50 55 60
Pro Gly Phe Pro Ala Ile Ser Gly Glu Glu Leu Ala Ser Lys Phe Lys
65 70 75 80
Glu His Ala Glu Lys Phe Gly Ala Asp Ile Tyr Asn Ala Glu Val Val
85 90 95
Lys Leu Glu Val Gln Gly Asp Lys Lys Val Val Glu Leu Asp Asp Gly
100 105 110
Lys Arg Ile Glu Ala Pro Val Val Ile Val Ala Thr Gly Ala Asn Pro
115 120 125
Lys Lys Leu Asn Val Pro Gly Glu Lys Glu Phe Phe Gly Lys Gly Val
130 135 140
Ser Tyr Cys Ala Thr Cys Asp Gly Tyr Leu Phe Ala Gly Lys Asp Val
145 150 155 160
Ile Val Val Gly Gly Gly Asp Ser Ala Cys Asp Glu Ser Ile Phe Leu
165 170 175
Ser Asn Ile Val Asn Lys Ile Thr Met Ile Gln Leu Leu Glu Thr Leu
180 185 190
Thr Ala Ala Lys Val Leu Gln Glu Arg Val Leu Asn Asn Pro Lys Ile
195 200 205
Glu Val Ile Tyr Asn Ser Thr Val Arg Glu Ile Arg Gly Lys Asp Lys
210 215 220
Val Glu Glu Val Val Ile Glu Asn Val Lys Thr Gly Glu Thr Lys Val
225 230 235 240
Leu Lys Ala Asp Gly Val Phe Ile Phe Ile Gly Leu Asp Pro Asn Ser
245 250 255
Lys Leu Leu Glu Gly Leu Val Glu Leu Asp Pro Tyr Gly Tyr Val Ile
260 265 270
Thr Asp Glu Asn Met Glu Thr Ser Val Lys Gly Ile Tyr Ala Val Gly
275 280 285
Asp Val Arg Lys Lys Asn Leu Arg Gln Ile Val Thr Ala Val Ala Asp
290 295 300
Gly Ala Ile Ala Val Glu His Ala Ala Lys His Tyr Phe
305 310 315

<210> 280

<211> 326

<212> PRT

<213> Thermoplasma volcanium

<400> 280

Met Asn Leu Tyr Arg Gly Met Glu Phe Asn Leu Arg Ser Val Ser Thr
1 5 10 15
Glu Ala Lys Glu Arg Asp Phe Asp Val Ile Ile Ile Gly Ala Gly Ala
20 25 30
Ala Gly Phe Ser Ala Ala Val Tyr Ala Ser Arg Ser Gly Leu Ser Ala
35 40 45
Val Ile Leu Asp Lys Asn Val Ala Gly Gly Leu Thr Ala Glu Ala Pro
50 55 60
Leu Val Glu Asn Tyr Leu Gly Phe Lys Ser Ile Val Gly Ser Asp Leu
65 70 75 80
Ala Lys Asn Phe Ala Glu His Ala Ser Glu Tyr Ala Ser Ile Arg Glu
85 90 95
Gly Val Glu Val Lys Ser Val Lys Lys Gly Asp Gly Gly Phe Ile Val
100 105 110
Asp Thr Ser Asp Gly Glu Tyr His Ser Lys Tyr Ile Ile Ile Thr Thr

Gly Phe Ile Thr Thr Asp Lys Asn Met Gln Thr Ser Val Cys Gly Ile
 260 265 270
 Phe Ala Ala Gly Asp Ile Val Asp Lys Asn Val Arg Gln Ile Ala Thr
 275 280 285
 Ala Thr Asn Asp Gly Val Ile Ala Ala Leu Tyr Ala Lys Glu Tyr Ile
 290 295 300
 Thr Arg Asn Asn Trp
 305

<210> 282
 <211> 318
 <212> PRT
 <213> *Vibrio cholerae*

<400> 282
 Met Ser Asn Val Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Lys Pro
 20 25 30
 Val Leu Val Thr Gly Met Gln Gln Gly Gly Gln Leu Thr Thr Thr Thr
 35 40 45
 Glu Val Glu Asn Trp Pro Gly Asp Ala Glu Gly Leu Thr Gly Pro Ala
 50 55 60
 Leu Met Glu Arg Met Lys Glu His Ala Glu Arg Phe Asp Thr Glu Ile
 65 70 75 80
 Val Phe Asp His Ile Asn Ser Val Asp Leu Ser Ser Arg Pro Phe Arg
 85 90 95
 Leu Thr Gly Asp Ser Gln Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ser
 100 105 110
 Thr Gly Ala Ser Ala Lys Tyr Leu Gly Leu Glu Ser Glu Glu Ala Phe
 115 120 125
 Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr
 130 135 140
 Arg Asn Gln Lys Val Ala Val Val Gly Gly Gly Asn Thr Ala Val Glu
 145 150 155 160
 Glu Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Val His
 165 170 175
 Arg Arg Asp Ser Phe Arg Ser Glu Lys Ile Leu Ile Asp Arg Leu Met
 180 185 190
 Asp Lys Val Ala Asn Gly Asn Ile Val Leu His Thr His Arg Thr Leu
 195 200 205
 Asp Glu Val Leu Gly Asp Glu Met Gly Val Thr Gly Val Arg Leu Lys
 210 215 220
 Asp Thr Gln Ser Asp Met Thr Glu Asn Leu Asp Val Met Gly Val Phe
 225 230 235 240
 Ile Ala Ile Gly His Gln Pro Asn Ser Gln Ile Phe Glu Gly Gln Leu
 245 250 255
 Glu Met Lys Asn Gly Tyr Ile Val Val Lys Ser Gly Leu Glu Gly Asn
 260 265 270
 Ala Thr Gln Thr Ser Ile Glu Gly Val Phe Ala Ala Gly Asp Val Met
 275 280 285
 Asp His Asn Tyr Arg Gln Ala Ile Thr Ser Ala Gly Thr Gly Cys Met
 290 295 300
 Ala Ala Leu Asp Ala Glu Arg Tyr Leu Asp Ser Gln Gly Lys
 305 310 315

<210> 283
 <211> 321
 <212> PRT
 <213> *Xylella fastidiosa*

<400> 283
 Met Ser Asp Tyr Pro Ala Ser Ala Lys His Ser Arg Leu Leu Ile Leu
 1 5 10 15
 Gly Ser Gly Pro Ala Gly Trp Thr Ala Ala Val Tyr Ala Ala Arg Ala

Asn	Leu	Gln	Pro	Val	Leu	Ile	Thr	Gly	Leu	Gln	Gln	Gly	Gly	Gln	Leu
	35						40					45			
Met	Thr	Thr	Thr	Glu	Val	Asp	Asn	Trp	Pro	Gly	Asp	Ala	His	Gly	Leu
	50					55					60				
Met	Gly	Pro	Asp	Leu	Met	Glu	Arg	Met	Gln	Ala	His	Ala	Glu	Arg	Phe
	65				70					75					80
Asp	Thr	Lys	Val	Ile	Phe	Asp	Gln	Ile	Tyr	Lys	Ala	Asp	Leu	Ser	Thr
			85					90						95	
Arg	Pro	Phe	Thr	Leu	Phe	Gly	Asp	Ser	Gly	Leu	Tyr	Thr	Cys	Asp	Gly
			100					105					110		
Leu	Ile	Ile	Ala	Thr	Gly	Ala	Asn	Ala	Lys	Tyr	Leu	Gly	Ile	Pro	Ser
		115					120					125			
Glu	Glu	Ala	Phe	Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp
	130					135					140				
Gly	Phe	Phe	Tyr	Arg	Asp	Gln	Asp	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn
	145				150				155						160
Thr	Ala	Val	Glu	Glu	Ala	Leu	Tyr	Leu	Ser	Asn	Ile	Ala	Arg	Lys	Val
				165				170						175	
Tyr	Leu	Ile	His	Arg	Arg	Asp	Lys	Leu	Arg	Ala	Glu	Lys	Ile	Met	Gln
		180						185					190		
Asn	Lys	Leu	Phe	Ser	Lys	Ala	Ala	Thr	Gly	Lys	Ile	Glu	Leu	Ile	Trp
		195					200						205		
Asn	Asn	Ala	Val	Glu	Glu	Val	Gly	Asn	Asp	Ala	Ser	Val	Thr	Gly	
	210					215				220					
Val	Arg	Ile	Arg	Ser	Thr	Gln	Asp	Ser	Ser	Thr	Arg	Asp	Ile	Asp	Val
	225				230					235				240	
Gln	Gly	Leu	Phe	Val	Ala	Ile	Gly	His	His	Pro	Asn	Thr	Asp	Leu	Phe
			245					250						255	
Ala	Gly	Gln	Leu	Ala	Met	Asn	Asn	Gly	Tyr	Leu	Gln	Ile	His	Ser	Gly
			260					265					270		
Thr	Ala	Gly	Asn	Val	Thr	Gln	Thr	Ser	Val	Glu	Gly	Val	Phe	Ala	Ala
		275					280					285			
Gly	Asp	Val	Ala	Asp	Gln	His	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly
	290					295				300					
Phe	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	Arg	Phe	Leu	Asp	Lys	Gly
	305				310				315						320
Asn															

<210> 284
 <211> 318
 <212> PRT
 <213> Zymomonas mobilis

<400> 284
 Met Ser Ala Asp Pro Ile Ser Thr Arg Val Phe Ile Leu Gly Ser Gly
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 Pro Ala Gly Leu Thr Ala Ala Ile Tyr Ala Ala Arg Ala Gly Leu Asn
 20 25 30
 Pro Ile Val Ala Gln Gly Leu Gln Pro Gly Gly Gln Leu Thr Ile Thr
 35 40 45
 Thr Glu Val Glu Asn Phe Pro Gly Phe Arg Glu Pro Ile Gln Gly Pro
 50 55 60
 Trp Leu Met Glu Glu Met Gln Ala Gln Ala Glu Asn Val Gly Ala Lys
 65 70 75 80
 Leu Val Trp Asp Ile Ile Thr Ser Val Asp Phe Ser Gln Arg Pro Tyr
 85 90 95
 Arg Leu Met Gly Asp Gly Gly Gln Val Tyr Leu Ala Asp Ser Leu Ile
 100 105 110
 Ile Ser Thr Gly Ala Gln Ala Arg Trp Leu Gly Leu Glu Ser Glu Thr
 115 120 125
 Ala Leu Arg Gly Lys Gly Ile Ser Ala Cys Ala Thr Cys Asp Gly Phe
 130 135 140
 Phe Phe Arg Gly Lys Lys Val Val Val Ile Gly Gly Gly Asn Thr Ala
 145 150 155 160

Val Glu Glu Ala Leu Tyr Leu Thr Asn His Ser Pro Glu Val Thr Leu
165 170 175
Ile His Arg Arg Asp Ser Leu Arg Ala Glu Lys Ile Met Gln Lys Arg
180 185 190
Leu Leu Ala Asn Pro Lys Ile Lys Ile Arg Trp Asn Ser Glu Val Ala
195 200 205
Glu Phe Ile Ala Gly Glu Asp Ser Ala Leu Ser Ala Val Lys Leu Lys
210 215 220
Asp Thr Lys Thr Gly Glu Ser Leu Leu Glu Thr Glu Gly Ala Phe
225 230 235 240
Ile Ala Ile Gly His Lys Pro Ala Thr Glu Leu Phe Gln Gly His Leu
245 250 255
Lys Leu Asp Asp Glu Gly Tyr Ile Glu Val Thr Pro Gly Thr Thr Gln
260 265 270
Thr Ser Ile Lys Gly Ile Phe Ala Cys Gly Asp Val Met Asp Lys His
275 280 285
Tyr Arg Gln Ala Val Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu
290 295 300
Glu Ala Glu Arg Phe Leu Gly Glu Ile Asp Phe Lys Glu Asp
305 310 315

<210> 285
<211> 122
<212> PRT
<213> Bos taurus

<400> 285
Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu Thr Asp Ser
1 5 10 15
Arg Lys Phe Gly Trp Glu Tyr Ser Gln Gln Val Arg His Ser Trp Ala
20 25 30
Thr Met Thr Glu Ala Ile Gln Ser His Ile Gly Ser Leu Ser Trp Gly
35 40 45
His Arg Leu Ala Leu Arg Glu Lys Ala Val Thr Tyr Val Asn Ser Phe
50 55 60
Gly Glu Phe Val Glu His Lys Val Lys Ala Thr Asn Glu Lys Gly
65 70 75 80
Gln Glu Val Leu Tyr Thr Ala Ala Lys Phe Val Ile Ala Thr Gly Glu
85 90 95
Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Arg Glu Tyr Cys Ile Thr
100 105 110
Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys
115 120

<210> 286
<211> 511
<212> PRT
<213> Bos taurus

<400> 286
Met Ala Ala Leu Arg Gly Ala Ala Ala Arg Phe Arg Gly Arg Ala Pro
1 5 10 15
Gly Gly Ala Arg Gly Ala Ala Gly Arg Gln Cys Tyr Asp Leu Leu Val
20 25 30
Ile Gly Gly Gly Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln
35 40 45
Leu Gly Lys Lys Val Ala Val Leu Asp Tyr Val Glu Pro Ser Pro Gln
50 55 60
Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile
65 70 75 80
Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gly Met Ile Arg
85 90 95
Asp Ala Pro His Tyr Gly Trp Gly Val Ala Gln Ala Pro His Ser Trp
100 105 110
Ala Thr Leu Ala Asp Ala Val Gln Asn His Val Lys Ser Leu Asn Trp

		115					120					125			
Gly	His	Arg	Ile	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Val
	130					135					140				
Lys	Ala	Ser	Phe	Val	Asp	Thr	His	Thr	Val	Cys	Gly	Val	Ser	Lys	Gly
145					150					155					160
Gly	Glu	Glu	Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly
				165					170					175	
Gly	Arg	Pro	Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly
			180					185					190		
Ile	Thr	Ser	Asp	Asp	Leu	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr
	195						200					205			
Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Leu	Leu
	210					215					220				
Thr	Gly	Leu	Gly	Leu	Asp	Thr	Thr	Val	Met	Ile	Arg	Ser	Val	Pro	Leu
225					230					235					240
Arg	Ala	Phe	Asp	Gln	Gln	Met	Ala	Ser	Leu	Val	Thr	Glu	His	Met	Ala
				245					250					255	
Gly	His	Gly	Thr	Arg	Ile	Leu	Arg	Gly	Cys	Ala	Pro	Glu	Lys	Val	Glu
			260					265					270		
Lys	Leu	Pro	Gly	Gln	Gln	Leu	Arg	Val	Thr	Trp	Val	Asp	Leu	Thr	Ser
		275					280					285			
Asp	Arg	Lys	Asp	Ala	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly
	290					295					300				
Arg	Val	Pro	Glu	Thr	Ala	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	His
305					310					315					320
Thr	Asn	Pro	Val	Thr	Gly	Lys	Ile	Leu	Val	Asp	Ala	Gln	Glu	Thr	Thr
				325					330					335	
Ser	Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	Pro
			340					345					350		
Glu	Leu	Thr	Pro	Thr	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Ala	Gln	Arg
		355					360					365			
Leu	Ser	Gly	Arg	Thr	Ser	Asp	Leu	Met	Asp	Tyr	Ser	Ser	Val	Pro	Thr
	370					375					380				
Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu
385					390					395					400
Ala	Ala	Val	Ala	Arg	His	Gly	Glu	Glu	His	Val	Glu	Val	Tyr	His	Ala
			405						410					415	
Phe	Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Pro	Gln	Arg	Asp	Ala	Ser	Gln
			420					425					430		
Cys	Tyr	Ile	Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu
		435					440					445			
Gly	Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Ile	Gln	Gly	Phe
	450					455					460				
Ala	Leu	Gly	Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Gln	Gln	Leu	Met	Arg	Thr
465					47										

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<210> 287
<211> 525
<212> PRT
<213> Caenorhabditis elegans
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<220>  
<221> VARIANT  
<222> 524  
<223> Xaa = Any Amino Acid
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<400> 287
Met Tyr Ile Lys Gly Asn Ala Val Gly Gly Leu Lys Glu Leu Lys Ala
1 5 10 15
Leu Lys Gln Asp Tyr Leu Lys Glu Trp Leu Arg Asp His Thr Tyr Asp
20 25 30
Leu Ile Val Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu

Ala	Ser	Arg	Leu	Gly	Lys	Lys	Val	Ala	Cys	Leu	Asp	Phe	Val	Lys	Pro
50						55					60				
Ser	Pro	Gln	Gly	Thr	Ser	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val
65					70					75				80	
Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu	Gly	His
				85					90					95	
Ser	Ile	His	Asp	Ala	Lys	Lys	Tyr	Gly	Trp	Lys	Leu	Pro	Glu	Gly	Lys
			100					105					110		
Val	Glu	His	Gln	Trp	Asn	His	Leu	Arg	Asp	Ser	Val	Gln	Asp	His	Ile
		115					120					125			
Ala	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Gln	Leu	Arg	Glu	Lys	Thr	Val
130					135						140				
Thr	Tyr	Ile	Asn	Ser	Tyr	Gly	Glu	Phe	Thr	Gly	Pro	Phe	Glu	Ile	Ser
145					150					155				160	
Ala	Thr	Asn	Lys	Lys	Lys	Lys	Val	Glu	Lys	Leu	Thr	Ala	Asp	Arg	Phe
			165						170				175		
Leu	Ile	Ser	Thr	Gly	Leu	Arg	Pro	Lys	Tyr	Pro	Glu	Ile	Pro	Gly	Val
			180				185						190		
Lys	Glu	Tyr	Thr	Ile	Thr	Ser	Asp	Asp	Leu	Phe	Gln	Leu	Pro	Tyr	Ser
		195				200						205			
Pro	Gly	Lys	Thr	Leu	Cys	Val	Gly	Ala	Ser	Tyr	Val	Ser	Leu	Glu	Cys
210					215						220				
Ala	Gly	Phe	Leu	His	Gly	Phe	Gly	Phe	Asp	Val	Thr	Val	Met	Val	Arg
225					230					235				240	
Ser	Ile	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Glu	Arg	Ile	Arg
			245						250				255		
Lys	His	Met	Ile	Ala	Tyr	Gly	Met	Lys	Phe	Glu	Ala	Gly	Val	Pro	Thr
			260				265						270		
Arg	Ile	Glu	Gln	Ile	Asp	Glu	Lys	Thr	Asp	Glu	Lys	Ala	Gly	Lys	Tyr
		275					280					285			
Arg	Val	Phe	Trp	Pro	Lys	Lys	Asn	Glu	Glu	Thr	Gly	Glu	Met	Gln	Glu
					295						300				
Val	Ser	Glu	Glu	Tyr	Asn	Thr	Ile	Leu	Met	Ala	Ile	Gly	Arg	Glu	Ala
305					310					315				320	
Val	Thr	Asp	Asp	Val	Gly	Leu	Thr	Thr	Ile	Gly	Val	Glu	Arg	Ala	Lys
				325					330					335	
Ser	Lys	Lys	Val	Leu	Gly	Arg	Arg	Glu	Gln	Ser	Thr	Thr	Ile	Pro	Trp
			340					345					350		
Val	Tyr	Ala	Ile	Gly	Asp	Val	Leu	Glu	Gly	Thr	Pro	Glu	Leu	Thr	Pro
		355					360					365			
Val	Ala	Ile	Gln	Ala	Gly	Arg	Val	Leu	Met	Arg	Arg	Ile	Phe	Asp	Gly
370					375						380				
Ala	Asn	Glu	Leu	Thr	Glu	Tyr	Asp	Gln	Ile	Pro	Thr	Thr	Val	Phe	Thr
385					390					395				400	
Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly	Leu	Ser	Glu	Glu	Asp	Ala	Met	Met
			405					410					415		
Lys	Tyr	Gly	Lys	Asp	Asn	Ile	Ile	Ile	Tyr	His	Asn	Val	Phe	Asn	Pro
		420					425					430			
Leu	Glu	Tyr	Thr	Ile	Ser	Glu	Arg	Met	Asp	Lys	Asp	His	Cys	Tyr	Leu
		435				440						445			
Lys	Met	Ile	Cys	Leu	Arg	Asn	Glu	Glu	Glu	Lys	Val	Val	Gly	Phe	His
		450				455					460				
Ile	Leu	Thr	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Gly	Ile	Ala
465					470					475				480	
Leu	Lys	Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile
			485					490					495		
His	Pro	Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys
			500					505					510		
Glu	Gly	Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys	Xaa	Gly			
		515				520						525			

<210> 288
 <211> 667
 <212> PRT
 <213> Caenorhabditis elegans

<220>
 <221> VARIANT
 <222> 666
 <223> Xaa = Any Amino Acid

<400> 288

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Gln	Gln	Glu	Ala	Ser	Ser	Pro	Ala	Asn	Pro	His	Val	Ser	Asp	Thr	Leu
			20					25					30		
Ser	Met	Gly	Val	Ala	Ala	Ser	Gly	Met	Pro	Pro	Pro	Lys	Arg	Pro	Ala
		35					40					45			
Pro	Ala	Glu	Ser	Pro	Thr	Leu	Pro	Gly	Glu	Thr	Leu	Val	Asp	Ala	Pro
		50				55					60				
Gly	Ile	Pro	Leu	Lys	Glu	Ala	Leu	Lys	Glu	Ala	Ala	Asn	Ser	Lys	Ile
65				70					75						80
Val	Ile	Phe	Tyr	Asn	Ser	Ser	Asp	Glu	Glu	Lys	Gln	Leu	Val	Glu	Phe
				85				90						95	
Glu	Thr	Tyr	Leu	Asn	Ser	Leu	Lys	Glu	Pro	Ala	Asp	Ala	Glu	Lys	Pro
			100					105					110		
Leu	Glu	Ile	Pro	Glu	Ile	Lys	Lys	Leu	Gln	Val	Ser	Arg	Ala	Ser	Gln
			115					120					125		
Lys	Val	Ile	Gln	Tyr	Leu	Thr	Leu	His	Thr	Ser	Trp	Pro	Leu	Met	Tyr
		130				135					140				
Ile	Lys	Gly	Asn	Ala	Val	Gly	Gly	Leu	Lys	Glu	Leu	Lys	Ala	Leu	Lys
145				150						155					160
Gln	Asp	Tyr	Leu	Lys	Glu	Trp	Leu	Arg	Asp	His	Thr	Tyr	Asp	Leu	Ile
				165					170					175	
Val	Ile	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ser	
			180				185						190		
Arg	Leu	Gly	Lys	Lys	Val	Ala	Cys	Leu	Asp	Phe	Val	Lys	Pro	Ser	Pro
		195					200					205			
Gln	Gly	Thr	Ser	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
		210				215					220				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu	Gly	His	Ser	Ile
225				230						235					240
His	Asp	Ala	Lys	Lys	Tyr	Gly	Trp	Lys	Leu	Pro	Glu	Gly	Lys	Val	Glu
				245					250					255	
His	Gln	Trp	Asn	His	Leu	Arg	Asp	Ser	Val	Gln	Asp	His	Ile	Ala	Ser
			260				265						270		
Leu	Asn	Trp	Gly	Tyr	Arg	Val	Gln	Leu	Arg	Glu	Lys	Thr	Val	Thr	Tyr
		275					280						285		
Ile	Asn	Ser	Tyr	Gly	Glu	Phe	Thr	Gly	Pro	Phe	Glu	Ile	Ser	Ala	Thr
		290				295					300				
Asn	Lys	Lys	Lys	Lys	Val	Glu	Lys	Leu	Thr	Ala	Asp	Arg	Phe	Leu	Ile
305					310					315					320
Ser	Thr	Gly	Leu	Arg	Pro	Lys	Tyr	Pro	Glu	Ile	Pro	Gly	Val	Lys	Glu
				325					330					335	
Tyr	Thr	Ile	Thr	Ser	Asp	Asp	Leu	Phe	Gln	Leu	Pro	Tyr	Ser	Pro	Gly
			340					345					350		
Lys	Thr	Leu	Cys	Val	Gly	Ala	Ser	Tyr	Val	Ser	Leu	Glu	Cys	Ala	Gly
		355					360					365			
Phe	Leu	His	Gly	Phe	Gly	Phe	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile
		370				375					380				
Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Glu	Arg	Ile	Arg	Lys	His
385				390						395					400
Met	Ile	Ala	Tyr	Gly	Met	Lys	Phe	Glu	Ala	Gly	Val	Pro	Thr	Arg	Ile
				405					410					415	
Glu	Gln	Ile	Asp	Glu	Lys	Thr	Asp	Glu	Lys	Ala	Gly	Lys	Tyr	Arg	Val
			420					425					430		
Phe	Trp	Pro	Lys	Lys	Asn	Glu	Glu	Thr	Gly	Glu	Met	Gln	Glu	Val	Ser
		435					440					445			
Glu	Glu	Tyr	Asn	Thr	Ile	Leu	Met	Ala	Ile	Gly	Arg	Glu	Ala	Val	Thr
		450				455					460				
Asp	Asp	Val	Gly	Leu	Thr	Ile	Gly	Val	Glu	Arg	Ala	Lys	Ser	Lys	
465				470					475					480	
Lys	Val	Leu	Gly	Arg	Arg	Glu	Gln	Ser	Thr	Thr	Ile	Pro	Trp	Val	Tyr

Ala	Ile	Gly	Asp	Val	Leu	Glu	Gly	Thr	Pro	Glu	Leu	Thr	Pro	Val	Ala
			500						505					510	
Ile	Gln	Ala	Gly	Arg	Val	Leu	Met	Arg	Arg	Ile	Phe	Asp	Gly	Ala	Asn
			515					520					525		
Glu	Leu	Thr	Glu	Tyr	Asp	Gln	Ile	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu
			530				535				540				
Glu	Tyr	Gly	Cys	Cys	Gly	Leu	Ser	Glu	Glu	Asp	Ala	Met	Met	Lys	Tyr
			545			550				555				560	
Gly	Lys	Asp	Asn	Ile	Ile	Ile	Tyr	His	Asn	Val	Phe	Asn	Pro	Leu	Glu
			565						570					575	
Tyr	Thr	Ile	Ser	Glu	Arg	Met	Asp	Lys	Asp	His	Cys	Tyr	Leu	Lys	Met
			580					585					590		
Ile	Cys	Leu	Arg	Asn	Glu	Glu	Glu	Lys	Val	Val	Gly	Phe	His	Ile	Leu
			595				600					605			
Thr	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Gly	Ile	Ala	Leu	Lys
			610			615					620				
Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile	His	Pro
			625			630				635				640	
Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys	Glu	Gly
			645					650						655	
Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys	Xaa	Gly					
			660					665							

<210> 289
 <211> 516
 <212> PRT
 <213> Drosophila melanogaster

<400> 289															
Met	Ser	Thr	Ile	Lys	Phe	Leu	Arg	Ser	Ser	Thr	His	Asn	Ala	Leu	Arg
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Ser	Ser	Leu	Gly	Trp	Cys	Arg	Leu	Ala	Ala	Ser	Arg	Pro	Arg	Tyr	Asp
		20						25				30			
Tyr	Asp	Leu	Val	Val	Leu	Gly	Gly	Gly	Ser	Ala	Gly	Leu	Ala	Cys	Ala
		35				40						45			
Lys	Glu	Ala	Ala	Gly	Cys	Gly	Ala	Arg	Val	Leu	Cys	Phe	Asp	Tyr	Val
		50				55				60					
Lys	Pro	Thr	Pro	Val	Gly	Thr	Lys	Trp	Gly	Ile	Gly	Gly	Thr	Cys	Val
		65			70					75				80	
Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu
			85					90						95	
Gly	Glu	Ala	Val	His	Glu	Ala	Val	Ala	Tyr	Gly	Trp	Asn	Val	Asp	Asp
		100						105				110			
Thr	Asn	Ile	Arg	Pro	Asp	Trp	Arg	Lys	Leu	Val	Arg	Ser	Val	Gln	Asn
		115				120						125			
His	Ile	Lys	Ser	Val	Asn	Trp	Val	Thr	Arg	Val	Asp	Leu	Arg	Asp	Lys
		130				135					140				
Lys	Val	Glu	Tyr	Val	Asn	Ser	Met	Ala	Thr	Phe	Arg	Asp	Ser	His	Thr
		145			150					155				160	
Ile	Glu	Tyr	Val	Ala	Met	Pro	Gly	Ala	Glu	His	Arg	Gln	Val	Thr	Ser
			165					170						175	
Glu	Tyr	Val	Val	Val	Ala	Val	Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Asp	Ile
		180						185					190		
Pro	Gly	Ala	Val	Glu	Leu	Gly	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Ser	Tyr
		195				200						205			
Glu	Arg	Glu	Pro	Gly	Arg	Thr	Leu	Val	Val	Gly	Ala	Gly	Tyr	Val	Gly
		210				215					220				
Leu	Glu	Cys	Ala	Cys	Phe	Leu	Lys	Gly	Leu	Gly	Tyr	Glu	Pro	Thr	Val
		225			230					235				240	
Met	Val	Arg	Ser	Ile	Val	Leu	Arg	Gly	Phe	Asp	Arg	Gln	Met	Ser	Glu
			245					250						255	
Leu	Leu	Ala	Ala	Met	Met	Thr	Glu	Arg	Gly	Ile	Pro	Phe	Leu	Gly	Thr
		260						265						270	
Thr	Ile	Pro	Lys	Ala	Val	Glu	Arg	Gln	Ala	Asp	Gly	Arg	Leu	Leu	Val
		275					280								

Arg Tyr Arg Asn Thr Thr Thr Gln Met Asp Gly Ser Asp Val Phe Asp
 290 295 300
 Thr Val Leu Trp Ala Ile Gly Arg Lys Gly Leu Ile Glu Asp Leu Asn
 305 310 315 320
 Leu Asp Ala Ala Gly Val Lys Thr His Asp Asp Lys Ile Val Val Asp
 325 330 335
 Ala Ala Glu Ala Thr Ser Val Pro His Ile Phe Ala Val Gly Asp Ile
 340 345 350
 Ile Tyr Gly Arg Pro Glu Leu Thr Pro Val Ala Ile Leu Ser Gly Arg
 355 360 365
 Leu Leu Ala Arg Arg Leu Phe Ala Gly Ser Thr Gln Leu Met Asp Tyr
 370 375 380
 Ala Asp Val Ala Thr Thr Val Phe Thr Pro Leu Glu Tyr Ser Cys Val
 385 390 395 400
 Gly Met Ser Glu Glu Thr Ala Ile Glu Leu Arg Gly Ala Asp Asn Ile
 405 410 415
 Glu Val Phe His Gly Tyr Tyr Lys Pro Thr Glu Phe Phe Ile Pro Gln
 420 425 430
 Lys Ser Val Arg His Cys Tyr Leu Lys Ala Val Ala Glu Val Ser Gly
 435 440 445
 Asp Gln Lys Ile Leu Gly Leu His Tyr Ile Gly Pro Val Ala Gly Glu
 450 455 460
 Val Ile Gln Gly Phe Ala Ala Ala Leu Lys Thr Gly Leu Thr Val Lys
 465 470 475 480
 Thr Leu Leu Asn Thr Val Gly Ile His Pro Thr Thr Ala Glu Glu Phe
 485 490 495
 Thr Arg Leu Ser Ile Thr Lys Arg Ser Gly Arg Asp Pro Thr Pro Ala
 500 505 510
 Ser Cys Cys Ser
 515

<210> 290
 <211> 524
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400> 290
 Met Ala Ala Met Ala Val Ala Leu Arg Gly Leu Gly Gly Arg Phe Arg
 1 5 10 15
 Trp Arg Thr Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly
 20 25 30
 Ala Ala Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Gly
 35 40 45
 Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys
 50 55 60
 Val Ser Val Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr Arg Trp
 65 70 75 80
 Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu
 85 90 95
 Met His Gln Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala Pro Asn
 100 105 110
 Tyr Gly Trp Glu Val Ala Gln Pro Val Pro His Asp Trp Arg Lys Met
 115 120 125
 Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg
 130 135 140
 Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser
 145 150 155 160
 Phe Val Asp Glu His Thr Val Cys Gly Val Ala Lys Gly Gly Lys Glu
 165 170 175
 Ile Leu Leu Ser Ala Asp His Ile Ile Ile Ala Thr Gly Gly Arg Pro
 180 185 190

Arg Tyr Pro Thr His Ile Glu Gly Ala Leu Glu Tyr Gly Ile Thr Ser
 195 200 205
 Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu Val Val
 210 215 220
 Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr Gly Ile
 225 230 235 240
 Gly Leu Asp Thr Thr Ile Met Met Arg Ser Ile Pro Leu Arg Gly Phe
 245 250 255
 Asp Gln Gln Met Ser Ser Met Val Ile Glu His Met Ala Ser His Gly
 260 265 270
 Thr Arg Phe Leu Arg Gly Cys Ala Pro Ser Arg Val Arg Arg Leu Pro
 275 280 285
 Asp Gly Gln Leu Gln Val Thr Trp Glu Asp Ser Thr Thr Gly Lys Glu
 290 295 300
 Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg Val Pro
 305 310 315 320
 Asp Thr Arg Ser Leu Asn Leu Glu Lys Ala Gly Val Asp Thr Ser Pro
 325 330 335
 Asp Thr Gln Lys Ile Leu Val Asp Ser Arg Glu Ala Thr Ser Val Pro
 340 345 350
 His Ile Tyr Ala Ile Gly Asp Val Val Glu Gly Arg Pro Glu Leu Thr
 355 360 365
 Pro Ile Ala Ile Met Ala Gly Arg Leu Leu Val Gln Arg Leu Phe Gly
 370 375 380
 Gly Ser Ser Asp Leu Met Asp Tyr Asp Asn Val Pro Thr Thr Val Phe
 385 390 395 400
 Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Glu Ala Val
 405 410 415
 Ala Arg His Gly Gln Glu His Val Glu Val Tyr His Ala His Tyr Lys
 420 425 430
 Pro Leu Glu Phe Thr Val Ala Gly Arg Asp Ala Ser Gln Cys Tyr Val
 435 440 445
 Lys Met Val Cys Leu Arg Glu Pro Pro Gln Leu Val Leu Gly Leu His
 450 455 460
 Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala Leu Gly
 465 470 475 480
 Ile Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Arg Thr Val Gly Ile
 485 490 495
 His Pro Thr Cys Ser Glu Glu Val Val Lys Leu Arg Ile Ser Lys Arg
 500 505 510
 Ser Gly Leu Asp Pro Thr Val Thr Gly Cys Xaa Gly
 515 520

<210> 291
 <211> 497
 <212> PRT
 <213> Homo sapiens

<400> 291
 Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
 20 25 30
 Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
 35 40 45
 Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His
 85 90 95
 Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn

	130					135					140					
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala	
145					150					155					160	
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr	
				165					170					175		
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys	
			180					185					190			
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	
		195					200					205				
Leu	Ala	Gly	Ile	Gly	Leu	Asn	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu	
	210					215					220					
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met	
225					230					235					240	
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val	
				245					250					255		
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln	
			260					265					270			
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met	
		275					280					285				
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr	
	290					295				300						
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp	
305					310					315					320	
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu	
				325					330					335		
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu	
			340					345					350			
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu	
		355					360					365				
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly	
	370					375				380						
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu	
385					390					395					400	
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg	
				405					410					415		
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn	
			420					425					430			
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	
		435					440					445				
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln	
	450					455					460					

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<210> 292
<211> 497
<212> PRT
<213> Homo sapien
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Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu	
			100					105					110			
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu	
		115					120					125				
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn	
		130				135					140					
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala	
		145			150					155					160	
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr	
			165					170					175			
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys	
		180						185					190			
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	
		195					200					205				
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu	
		210				215					220					
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met	
		225			230					235					240	
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val	
			245					250						255		
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln	
			260					265					270			
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met	
		275					280					285				
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr	
		290				295					300					
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp	
		305			310					315					320	
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu	
			325					330						335		
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu	
			340					345					350			
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu	
		355					360					365				
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly	
		370				375					380					
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu	
		385			390					395					400	
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg	
			405					410						415		
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn	
			420					425					430			
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	
		435					440					445				
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln	
		450				455					460					
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr	
		465			470					475					480	
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly	
			485					490						495		
Cys																

<210> 293
 <211> 521
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 520
 <223> Xaa = Any Amino Acid

<400> 293
 Met Ala Val Ala Leu Arg Gly Leu Gly Gly Arg Phe Arg Trp Arg Thr
 1 5 10 15

Gln	Ala	Val	Ala	Gly	Gly	Val	Arg	Gly	Ala	Ala	Arg	Gly	Ala	Ala	Ala
			20					25					30		
Gly	Gln	Arg	Asp	Tyr	Asp	Leu	Leu	Val	Val	Gly	Gly	Gly	Ser	Gly	Gly
		35				40						45			
Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Arg	Lys	Val	Ala	Val
	50					55					60				
Val	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln	Gly	Thr	Arg	Trp	Gly	Leu	Gly
	65				70					75				80	
Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln
				85					90					95	
Ala	Ala	Leu	Leu	Gly	Gly	Leu	Ile	Gln	Asp	Ala	Pro	Asn	Tyr	Gly	Trp
			100					105					110		
Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg	Lys	Met	Ala	Glu	Ala
		115					120					125			
Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	Val	Gln	Leu
	130					135					140				
Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	Phe	Val	Asp
	145				150					155				160	
Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly	Lys	Glu	Ile	Leu	Leu
				165					170					175	
Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly	Arg	Pro	Arg	Tyr	Pro
			180					185					190		
Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser	Asp	Asp	Ile
		195					200						205		
Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val	Gly	Ala	Ser
	210					215					220				
Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile	Gly	Leu	Asp
	225				230					235				240	
Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe	Asp	Gln	Gln
				245					250					255	
Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser	His	Gly	Thr	Arg	Phe
			260					265					270		
Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Arg	Arg	Leu	Pro	Asp	Gly	Gln
		275					280					285			
Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly	Lys	Glu	Asp	Thr	Gly
	290					295					300				
Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro	Asp	Thr	Arg
	305				310					315				320	
Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr	Ser	Pro	Asp	Thr	Gln
				325					330					335	
Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser	Val	Pro	His	Ile	Tyr
			340					345					350		
Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu	Leu	Thr	Pro	Ile	Ala
		355					360					365			
Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu	Phe	Gly	Gly	Ser	Ser
	370					375					380				
Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu
	385				390					395				400	
Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val	Ala	Arg	His
			405						410					415	
Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His	Tyr	Lys	Pro	Leu	Glu
			420					425					430		
Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Val	Lys	Met	Val
		435					440					445			
Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His	Phe	Leu	Gly
	450					455					460				
Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly	Ile	Lys	Cys
	465				470					475				480	
Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val	Gly	Ile	His	Pro	Thr
			485						490					495	
Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser	Lys	Arg	Ser	Gly	Leu
			500					505						510	
Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly							
		515					520								

<210> 294

<211> 579
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 578
 <223> Xaa = Any Amino Acid

<400> 294
 Ala Glu Arg Val Val Ile Phe Ser Lys Ser Tyr Cys Pro His Ser Thr
 1 5 10 15
 Arg Val Lys Glu Leu Phe Ser Ser Leu Gly Val Glu Cys Asn Val Leu
 20 25 30
 Glu Leu Asp Gln Val Asp Asp Gly Ala Arg Val Gln Glu Val Leu Ser
 35 40 45
 Glu Ile Thr Asn Gln Lys Thr Val Pro Asn Ile Phe Val Asn Lys Val
 50 55 60
 His Val Gly Gly Cys Asp Gln Thr Phe Gln Ala Tyr Gln Ser Gly Leu
 65 70 75 80
 Leu Gln Lys Leu Leu Gln Glu Asp Leu Ala Tyr Asp Tyr Asp Leu Ile
 85 90 95
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ser Cys Ala Lys Glu Ala Ala
 100 105 110
 Ile Leu Gly Lys Lys Val Met Val Leu Asp Phe Val Val Pro Ser Pro
 115 120 125
 Gln Gly Thr Ser Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 130 135 140
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 145 150 155 160
 Cys Asp Ser Arg Lys Phe Gly Trp Glu Tyr Asn Gln Gln Val Arg His
 165 170 175
 Asn Trp Glu Thr Met Thr Lys Ala Ile Gln Asn His Ile Ser Ser Leu
 180 185 190
 Asn Trp Gly Tyr Arg Leu Ser Leu Arg Glu Lys Ala Val Ala Tyr Val
 195 200 205
 Asn Ser Tyr Gly Glu Phe Val Glu His His Lys Ile Lys Ala Thr Asn
 210 215 220
 Lys Lys Gly Gln Glu Thr Tyr Tyr Thr Ala Ala Gln Phe Val Ile Ala
 225 230 235 240
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Gln Gly Asp Lys Glu Tyr
 245 250 255
 Cys Ile Thr Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 260 265 270
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 275 280 285
 Leu Ala Gly Phe Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 290 295 300
 Leu Arg Gly Phe Asp Gln Glu Met Ala Glu Lys Val Gly Ser Tyr Met
 305 310 315 320
 Glu Gln His Gly Val Lys Phe Leu Arg Lys Phe Ile Pro Val Met Val
 325 330 335
 Gln Gln Leu Glu Lys Gly Ser Pro Gly Lys Leu Lys Val Leu Ala Lys
 340 345 350
 Ser Thr Glu Gly Thr Glu Thr Ile Glu Gly Val Tyr Asn Thr Val Leu
 355 360 365
 Leu Ala Ile Gly Arg Asp Ser Cys Thr Arg Lys Ile Gly Leu Glu Lys
 370 375 380
 Ile Gly Val Lys Ile Asn Glu Lys Ser Gly Lys Ile Pro Val Asn Asp
 385 390 395 400
 Val Glu Gln Thr Asn Val Pro Tyr Val Tyr Ala Val Gly Asp Ile Leu
 405 410 415
 Glu Asp Lys Pro Glu Leu Thr Pro Val Ala Ile Gln Ser Gly Lys Leu
 420 425 430
 Leu Ala Gln Arg Leu Phe Gly Ala Ser Leu Glu Lys Cys Asp Tyr Ile
 435 440 445
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly

450	Leu Ser Glu Glu Lys	455	Ile Glu Val Tyr Lys	460	Lys Glu Asn Leu Glu
465	Ile Tyr His Thr	470	Leu Phe Trp Pro	475	Leu Trp Thr Val Ala Gly Arg
	485		490		495
	Glu Asn Asn Thr Cys Tyr Ala Lys		Ile Ile Cys Asn Lys Phe		Asp His
	500		505		510
	Asp Arg Val Ile Gly Phe His		Ile Leu Gly Pro Asn Ala Gly		Glu Val
	515		520		525
	Thr Gln Gly Phe Ala Ala		Ala Met Lys Cys Gly		Leu Thr Lys Gln Leu
	530		535		540
	Leu Asp Asp Thr Ile Gly		Ile His Pro Thr Cys Gly		Glu Val Phe Thr
	545		550		555
	Thr Leu Glu Ile Thr Lys		Ser Ser Gly Leu Asp		Ile Thr Gln Lys Gly
	565		570		575
	Cys Xaa Gly				

<210> 295
 <211> 524
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400> 295	Met Ala Ala Met Ala Val Ala Leu Arg Gly Leu Gly Gly Arg Phe Arg
1	5 10 15
Trp Arg Thr Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly	20 25 30
Ala Ala Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Gly	35 40 45
Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys	50 55 60
Val Ala Val Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr Arg Trp	65 70 75 80
Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu	85 90 95
Met His Gln Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala Pro Asn	100 105 110
Tyr Gly Trp Glu Val Ala Gln Pro Val Pro His Asp Trp Arg Lys Met	115 120 125
Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg	130 135 140
Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser	145 150 155 160
Phe Val Asp Glu His Thr Val Cys Gly Val Ala Lys Gly Gly Lys Glu	165 170 175
Ile Leu Leu Ser Ala Asp His Ile Ile Ile Ala Thr Gly Gly Arg Pro	180 185 190
Arg Tyr Pro Thr His Ile Glu Gly Ala Leu Glu Tyr Gly Ile Thr Ser	195 200 205
Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu Val Val	210 215 220
Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr Gly Ile	225 230 235 240
Gly Leu Asp Thr Thr Ile Met Met Arg Ser Ile Pro Leu Arg Gly Phe	245 250 255
Asp Gln Gln Met Ser Ser Met Val Ile Glu His Met Ala Ser His Gly	260 265 270
Thr Arg Phe Leu Arg Gly Cys Ala Pro Ser Arg Val Arg Arg Leu Pro	275 280 285
Asp Gly Gln Leu Gln Val Thr Trp Glu Asp Ser Thr Thr Gly Lys Glu	

290 295 300
 Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg Val Pro
 305 310 315 320
 Asp Thr Arg Ser Leu Asn Leu Glu Lys Ala Gly Val Asp Thr Ser Pro
 325 330 335
 Asp Thr Gln Lys Ile Leu Val Asp Ser Arg Glu Ala Thr Ser Val Pro
 340 345 350
 His Ile Tyr Ala Ile Gly Asp Val Val Glu Gly Arg Pro Glu Leu Thr
 355 360 365
 Pro Ile Ala Ile Met Ala Gly Arg Leu Leu Val Gln Arg Leu Phe Gly
 370 375 380
 Gly Ser Ser Asp Leu Met Asp Tyr Asp Asn Val Pro Thr Thr Val Phe
 385 390 395 400
 Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Glu Ala Val
 405 410 415
 Ala Arg His Gly Gln Glu His Val Glu Val Tyr His Ala His Tyr Lys
 420 425 430
 Pro Leu Glu Phe Thr Val Ala Gly Arg Asp Ala Ser Gln Cys Tyr Val
 435 440 445
 Lys Met Val Cys Leu Arg Glu Pro Pro Gln Leu Val Leu Gly Leu His
 450 455 460
 Phe Leu Gly Pro Asn Ala Gly Glu Val Thr Gln Gly Phe Ala Leu Gly
 465 470 475 480
 Ile Lys Cys Gly Ala Ser Tyr Ala Gln Val Met Arg Thr Val Gly Ile
 485 490 495
 His Pro Thr Cys Ser Glu Glu Val Val Lys Leu Arg Ile Ser Lys Arg
 500 505 510
 Ser Gly Leu Asp Pro Thr Val Thr Gly Cys Xaa Gly
 515 520

<210> 296
 <211> 577
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> 576
 <223> Xaa = Any Amino Acid

<400> 296
 Arg Val Val Ile Phe Ser Lys Ser Tyr Cys Pro His Ser Thr Arg Val
 1 5 10 15
 Lys Glu Leu Phe Ser Ser Leu Gly Val Glu Cys Asn Val Leu Glu Leu
 20 25 30
 Asp Gln Val Asp Asp Gly Ala Arg Val Gln Glu Val Leu Ser Glu Ile
 35 40 45
 Thr Asn Gln Lys Thr Val Pro Asn Ile Phe Val Asn Lys Val His Val
 50 55 60
 Gly Gly Cys Asp Gln Thr Phe Gln Ala Tyr Gln Ser Gly Leu Leu Gln
 65 70 75 80
 Lys Leu Leu Gln Glu Asp Leu Ala Tyr Asp Tyr Asp Leu Ile Ile Ile
 85 90 95
 Gly Gly Gly Ser Gly Gly Leu Ser Cys Ala Lys Glu Ala Ala Ile Leu
 100 105 110
 Gly Lys Lys Val Met Val Leu Asp Phe Val Val Pro Ser Pro Gln Gly
 115 120 125
 Thr Ser Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro
 130 135 140
 Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu Cys Asp
 145 150 155 160
 Ser Arg Lys Phe Gly Trp Glu Tyr Asn Gln Gln Val Arg His Asn Trp
 165 170 175
 Glu Thr Met Thr Lys Ala Ile Gln Asn His Ile Ser Ser Leu Asn Trp
 180 185 190
 Gly Tyr Arg Leu Ser Leu Arg Glu Lys Ala Val Ala Tyr Val Asn Ser

Pro	Asn	Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg
			85						90					95	
Lys	Met	Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly
			100					105					110		
His	Arg	Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys
		115					120					125			
Ala	Ser	Phe	Val	Asp	Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly
		130				135					140				
Lys	Glu	Ile	Leu	Leu	Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly
145					150				155					160	
Arg	Pro	Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile
			165					170						175	
Thr	Ser	Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu
		180						185					190		
Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr
		195					200					205			
Gly	Ile	Gly	Leu	Asp	Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg
		210				215					220				
Gly	Phe	Asp	Gln	Gln	Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser
225					230				235					240	
His	Gly	Thr	Arg	Phe	Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Arg	Arg
			245					250						255	
Leu	Pro	Asp	Gly	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly
		260						265					270		
Lys	Glu	Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg
		275					280					285			
Val	Pro	Asp	Thr	Arg	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr
		290				295					300				
Ser	Pro	Asp	Thr	Gln	Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser
305					310				315					320	
Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu
			325					330						335	
Leu	Thr	Pro	Thr	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu
		340						345					350		
Phe	Gly	Gly	Ser	Ser	Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr
		355					360					365			
Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu
		370				375					380				
Ala	Val	Ala	Arg	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His
385					390				395					400	
Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys
			405					410						415	
Tyr	Val	Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly
		420						425					430		
Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala
		435					440					445			
Leu	Gly	Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val
		450				455					460				
Gly	Ile	His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser
465					470				475					480	
Lys	Arg	Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Cys	Gly		
			485					490							

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 <212> PRT
 <213> Homo sapien

<400> 298
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 Trp Arg Thr Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly
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 Ala Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Ser
 35 40 45
 Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys Val

50		55		60
Ser Val Val Asp Tyr Val	Glu Pro Ser Pro Gln Gly Thr Arg Trp Gly			
65	70	75	80	
Leu Gly Gly Thr Cys Val	Asn Val Gly Cys Ile Pro Lys Lys Leu Met			
85	90	95		
His Gln Ala Ala Leu Leu	Gly Gly Leu Ile Gln Asp Ala Pro Asn Tyr			
100	105	110		
Gly Trp Glu Val Ala Gln	Pro Val Pro His Asp Trp Arg Lys Met Ala			
115	120	125		
Glu Ala Val Gln Asn His	Val Lys Ser Leu Asn Trp Gly His Arg Val			
130	135	140		
Gln Leu Gln Asp Arg Lys	Val Lys Tyr Phe Asn Ile Lys Ala Ser Phe			
145	150	155		
Val Asp Glu His Thr Val	Cys Gly Val Ala Lys Gly Gly Lys Glu Ile			
165	170	175		
Leu Leu Ser Ala Asp His	Ile Ile Ile Ala Thr Gly Gly Arg Pro Arg			
180	185	190		
Tyr Pro Thr His Ile Glu	Gly Ala Leu Glu Tyr Gly Ile Thr Ser Asp			
195	200	205		
Asp Ile Phe Trp Leu Lys	Glu Ser Pro Gly Lys Thr Leu Val Val Gly			
210	215	220		
Ala Ser Tyr Val Ala Leu	Glu Cys Ala Gly Phe Leu Thr Gly Ile Gly			
225	230	235		
Leu Asp Thr Thr Ile Met	Met Arg Ser Ile Pro Leu Arg Gly Phe Asp			
245	250	255		
Gln Gln Met Ser Ser Met	Val Ile Glu His Met Ala Ser His Gly Thr			
260	265	270		
Arg Phe Leu Arg Gly Cys	Ala Pro Ser Arg Val Lys Arg Leu Pro Asp			
275	280	285		
Gly Gln Leu Gln Val Thr	Trp Glu Asp Ser Thr Thr Gly Lys Glu Asp			
290	295	300		
Thr Gly Thr Phe Asp Thr	Val Leu Trp Ala Ile Gly Arg Val Pro Asp			
305	310	315		
Thr Arg Ser Leu Asn Leu	Glu Lys Ala Gly Val Asp Thr Ser Pro Asp			
325	330	335		
Thr Gln Lys Ile Leu Val	Asp Ser Arg Glu Ala Thr Ser Val Pro His			
340	345	350		
Ile Tyr Ala Ile Gly Asp	Val Val Glu Gly Arg Pro Glu Leu Thr Pro			
355	360	365		
Thr Ala Ile Met Ala Gly	Arg Leu Leu Val Gln Arg Leu Phe Gly Gly			
370	375	380		
Ser Ser Asp Leu Met Asp	Tyr Asp Asn Val Pro Thr Thr Val Phe Thr			
385	390	395		
Pro Leu Glu Tyr Gly Cys	Val Gly Leu Ser Glu Glu Glu Ala Val Ala			
405	410	415		
Arg His Gly Gln Glu His	Val Glu Val Tyr His Ala His Tyr Lys Pro			
420	425	430		
Leu Glu Phe Thr Val Ala	Gly Arg Asp Ala Ser Gln Cys Tyr Val Lys			
435	440	445		
Met Val Cys Leu Arg Glu	Pro Pro Gln Leu Val Leu Gly Leu His Phe			
450	455	460		
Leu Gly Pro Asn Ala Gly	Glu Val Thr Gln Gly Phe Ala Leu Gly Ile			
465	470	475		
Lys Cys Gly Ala Ser Tyr	Ala Gln Val Met Arg Thr Val Gly Ile His			
485	490	495		
Pro Thr Cys Ser Glu Glu	Val Val Lys Leu Arg Ile Ser Lys Arg Ser			
500	505	510		
Gly Leu Asp Pro Thr Val	Thr Gly Cys			
515	520			

<210> 299
 <211> 549
 <212> PRT
 <213> Homo sapien

 <400> 299

Met	Ser	Cys	Glu	Asp	Gly	Arg	Ala	Leu	Glu	Gly	Thr	Leu	Ser	Glu	Leu
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Ala	Ala	Glu	Thr	Asp	Leu	Pro	Val	Val	Phe	Val	Lys	Gln	Arg	Lys	Ile
		20					25						30		
Gly	Gly	His	Gly	Pro	Thr	Leu	Lys	Ala	Tyr	Gln	Glu	Gly	Arg	Leu	Gln
		35					40					45			
Lys	Leu	Leu	Lys	Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp
	50					55					60				
Tyr	Asp	Leu	Ile	Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala
65					70					75					80
Lys	Glu	Ala	Ala	Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val
				85					90					95	
Thr	Pro	Thr	Pro	Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val
			100					105					110		
Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu
		115					120					125			
Gly	Gln	Ala	Leu	Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu
	130					135					140				
Thr	Val	Lys	His	Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His
145					150					155					160
Ile	Gly	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys
				165					170					175	
Val	Val	Tyr	Glu	Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile
			180					185					190		
Lys	Ala	Thr	Asn	Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg
		195					200					205			
Phe	Leu	Ile	Ala	Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly
		210					215					220			
Asp	Lys	Glu	Tyr	Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr
225					230					235					240
Cys	Pro	Gly	Lys	Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu
				245					250					255	
Cys	Ala	Gly	Phe	Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val
			260					265					270		
Arg	Ser	Ile	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile
		275					280					285			
Gly	Glu	His	Met	Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val
	290					295					300				
Pro	Ile	Lys	Val	Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg
305					310					315					320
Val	Val	Ala	Gln	Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr
				325					330					335	
Asn	Thr	Val	Met	Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile
			340					345					350		
Gly	Leu	Glu	Thr	Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile
		355					360					365			
Pro	Val	Thr	Asp	Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile
	370					375					380				
Gly	Asp	Ile	Leu	Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln
385					390					395					400
Ala	Gly	Arg	Leu	Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys
				405					410					415	
Cys	Asp	Tyr	Glu	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr
			420					425					430		
Gly	Ala	Cys	Gly	Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu
		435					440					445			
Glu	Asn	Ile	Glu	Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr
	450					455					460				
Ile	Pro	Ser	Arg	Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn
465					470					475					480
Thr	Lys	Asp	Asn	Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn
			485						490					495	
Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu
			500					505					510		
Thr	Lys	Lys	Gln	Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala
		515					520					525			
Glu	Val	Phe	Thr	Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile

530
 * Leu Gln Ala Gly Cys
 545

535

540

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 <211> 613
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 612
 <223> Xaa = Any Amino Acid

<400> 300

Met	Pro	Val	Asp	Asp	Cys	Trp	Leu	Tyr	Phe	Pro	Ala	Ser	Arg	Gly	Arg
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Thr	Phe	Val	Gln	Thr	Val	Trp	Val	Ala	Pro	Thr	Cys	Pro	Asn	Cys	Cys
			20					25					30		
Trp	Phe	Pro	Gly	Phe	Leu	Pro	Pro	Val	Pro	Arg	Pro	Pro	His	Val	Pro
		35				40						45			
Arg	Val	Leu	Leu	Arg	Gly	Pro	Arg	Gly	Ala	Val	Leu	Pro	Ala	Ser	Arg
	50					55					60				
Pro	Ser	Lys	Thr	Leu	Pro	Ser	Ser	Ser	Gln	Thr	Pro	Cys	Pro	Thr	Asp
65				70					75					80	
Pro	Cys	Ile	Cys	Pro	Pro	Ser	Thr	Pro	Asp	Ser	Arg	Gln	Glu	Lys	
			85					90					95		
Asn	Thr	Gln	Ser	Glu	Leu	Pro	Asn	Lys	Lys	Gly	Gln	Leu	Gln	Lys	Leu
			100					105					110		
Pro	Thr	Met	Asn	Gly	Ser	Lys	Asp	Pro	Pro	Gly	Ser	Tyr	Asp	Phe	Asp
		115					120					125			
Leu	Ile	Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu
	130					135					140				
Ala	Ala	Lys	Phe	Asp	Lys	Lys	Val	Leu	Val	Leu	Asp	Phe	Val	Thr	Pro
145					150					155				160	
Thr	Pro	Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val
				165					170					175	
Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln
			180					185					190		
Ala	Leu	Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Asp	Thr	Val
		195					200					205			
Lys	His	Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Ser	His	Ile	Gly
	210					215					220				
Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val
225					230					235				240	
Tyr	Glu	Asn	Ala	Tyr	Gly	Arg	Phe	Ile	Gly	Pro	His	Arg	Ile	Val	Ala
				245					250					255	
Thr	Asn	Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu
			260					265					270		
Ile	Ala	Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys
		275					280					285			
Glu	Tyr	Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro
	290					295					300				
Gly	Lys	Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala
305					310					315					
Gly	Phe	Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser
				325					330					335	
Ile	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu
			340					345					350		
His	Met	Glu	Gln	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr
		355					360					365			
Lys	Ile	Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Thr
	370					375					380				
Ala	Gln	Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Gly	Glu	Phe	Asn	Thr
385					390					395				400	
Val	Leu	Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu

Glu	Thr	Val	Gly	405	Val	Lys	Ile	Asn	Glu	410	Lys	Thr	Gly	Lys	Ile	415	Pro	Val
			420							425						430		
Thr	Asp	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp				
		435				440								445				
Ile	Leu	Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly			
		450				455								460				
Arg	Leu	Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Asn	Val	Lys	Cys	Asp			
465					470					475					480			
Tyr	Asp	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys			
			485							490					495			
Cys	Gly	Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn			
			500							505					510			
Ile	Glu	Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro			
		515					520							525				
Ser	Arg	Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Leu	Lys			
		530				535								540				
Asp	Asp	Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly			
545					550					555					560			
Glu	Val	Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys			
			565							570					575			
Gln	Gln	Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile			
			580							585					590			
Phe	Thr	Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln			
		595					600								605			
Ser	Gly	Cys	Xaa	Gly														
		610																

<210> 301
 <211> 310
 <212> PRT
 <213> Mus musculus

<400> 301																		
Met	Asn	Gly	Ser	Lys	Asp	Pro	Pro	Gly	Ser	Tyr	Asp	Phe	Asp	Leu	Ile			
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Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala			
			20					25					30					
Lys	Phe	Asp	Lys	Lys	Val	Leu	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro			
		35					40					45						
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys			
		50				55					60							
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu			
65					70					75					80			
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Asp	Thr	Val	Lys	His			
				85					90					95				
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Ser	His	Ile	Gly	Ser	Leu			
			100					105					110					
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu			
		115					120						125					
Asn	Ala	Tyr	Gly	Arg	Phe	Ile	Gly	Pro	His	Arg	Ile	Val	Ala	Thr	Asn			
		130				135					140							
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala			
145				150						155				160				
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr			
				165					170					175				
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys			
			180					185					190					
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe			
		195					200						205					
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu			
		210				215						220						
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met			
225					230					235				240				
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile			
				245					250					255				

Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Thr Ala Gln
 260 265 270
 Ser Thr Asn Ser Glu Glu Thr Ile Glu Gly Glu Phe Asn Thr Val Leu
 275 280 285
 Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn
 305 310

<210> 302
 <211> 613
 <212> PRT
 <213> Mus musculus

<400> 302
 Met Ser Ser Pro Pro Gly Arg Arg Ala Arg Leu Ala Ser Pro Gly Thr
 1 5 10 15
 Ser Arg Pro Ser Glu Ala Arg Glu Leu Arg Arg Arg Leu Arg
 20 25 30
 Asp Leu Ile Glu Gly Asn Arg Val Met Ile Phe Ser Lys Ser Tyr Cys
 35 40 45
 Pro His Ser Thr Arg Val Lys Glu Leu Phe Ser Ser Leu Gly Val Val
 50 55 60
 Tyr Asn Ile Leu Glu Leu Asp Gln Val Asp Asp Gly Ala Ser Val Gln
 65 70 75 80
 Glu Val Leu Thr Glu Ile Ser Asn Gln Lys Thr Val Pro Asn Ile Phe
 85 90 95
 Val Asn Lys Val His Val Gly Gly Cys Asp Arg Thr Phe Gln Ala His
 100 105 110
 Gln Asn Gly Leu Leu Gln Lys Leu Leu Gln Asp Asp Ser Ala His Asp
 115 120 125
 Tyr Asp Leu Ile Ile Ile Gly Gly Ser Gly Gly Leu Ser Cys Ala
 130 135 140
 Lys Glu Ala Ala Asn Leu Gly Lys Lys Val Met Val Leu Asp Phe Val
 145 150 155 160
 Val Pro Ser Pro Gln Gly Thr Thr Trp Gly Leu Gly Gly Thr Cys Val
 165 170 175
 Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu
 180 185 190
 Gly His Ala Leu Gln Asp Ala Lys Lys Tyr Gly Trp Glu Tyr Asn Gln
 195 200 205
 Gln Val Lys His Asn Trp Glu Ala Met Thr Glu Ala Ile Gln Ser His
 210 215 220
 Ile Gly Ser Leu Asn Trp Gly Tyr Arg Val Thr Leu Arg Glu Lys Gly
 225 230 235 240
 Val Thr Tyr Val Asn Ser Phe Gly Glu Phe Val Asp Leu His Lys Ile
 245 250 255
 Lys Ala Thr Asn Lys Lys Gly Gln Glu Thr Phe Tyr Thr Ala Ser Lys
 260 265 270
 Phe Val Ile Ala Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Gln Gly
 275 280 285
 Asp Lys Glu Tyr Cys Ile Thr Ser Asp Asp Leu Phe Ser Leu Pro Tyr
 290 295 300
 Cys Pro Gly Cys Thr Leu Val Val Gly Ala Ser Tyr Val Gly Leu Glu
 305 310 315 320
 Cys Ala Gly Phe Leu Ala Gly Leu Gly Leu Asp Val Thr Val Met Val
 325 330 335
 Arg Ser Val Leu Leu Arg Gly Phe Asp Gln Glu Met Ala Glu Lys Val
 340 345 350
 Gly Ser Tyr Leu Glu Gln Gln Gly Val Lys Phe Gln Arg Lys Phe Thr
 355 360 365
 Pro Ile Leu Val Gln Gln Leu Glu Lys Gly Leu Pro Gly Lys Leu Lys
 370 375 380
 Val Val Ala Lys Ser Thr Glu Gly Pro Glu Thr Val Glu Gly Ile Tyr
 385 390 395 400
 Asn Thr Val Leu Leu Ala Ile Gly Arg Asp Ser Cys Thr Arg Lys Ile

Gly	Leu	Glu	Lys	Ile	Gly	Val	Lys	Ile	Asn	Glu	Lys	Asn	Gly	Lys	Ile
			420					425					430		
Pro	Val	Asn	Asp	Val	Glu	Gln	Thr	Asn	Val	Pro	His	Val	Tyr	Ala	Ile
		435					440					445			
Gly	Asp	Ile	Leu	Asp	Gly	Lys	Pro	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln
	450				455						460				
Ala	Gly	Lys	Leu	Leu	Ala	Arg	Arg	Leu	Phe	Gly	Val	Ser	Leu	Glu	Lys
465					470					475					480
Cys	Asp	Tyr	Ile	Asn	Ile	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr
			485					490					495		
Gly	Cys	Cys	Gly	Leu	Ser	Glu	Glu	Lys	Ala	Ile	Glu	Met	Tyr	Lys	Lys
			500					505					510		
Glu	Asn	Leu	Glu	Val	Tyr	His	Thr	Leu	Phe	Trp	Pro	Leu	Glu	Trp	Thr
	515						520					525			
Val	Ala	Gly	Arg	Asp	Asn	Asn	Thr	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn
	530				535						540				
Lys	Phe	Asp	Asn	Glu	Arg	Val	Val	Gly	Phe	His	Leu	Leu	Gly	Pro	Asn
545					550					555					560
Ala	Gly	Glu	Ile	Thr	Gln	Gly	Phe	Ala	Ala	Ala	Met	Lys	Cys	Gly	Leu
			565					570					575		
Thr	Lys	Gln	Leu	Leu	Asp	Asp	Thr	Ile	Gly	Ile	His	Pro	Thr	Cys	Gly
			580					585					590		
Glu	Val	Phe	Thr	Thr	Leu	Glu	Ile	Thr	Lys	Ser	Ser	Gly	Leu	Asp	Ile
	595						600					605			
Thr	Gln	Lys	Gly	Cys											
	610														

<210> 303
 <211> 524
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400> 303																
Met	Val	Ala	Ala	Met	Val	Ala	Ala	Leu	Arg	Gly	Pro	Ser	Arg	Arg	Phe	
1				5					10					15		
Arg	Pro	Arg	Thr	Arg	Ala	Leu	Thr	Arg	Gly	Thr	Arg	Gly	Ala	Ala	Ser	
			20					25					30			
Ala	Ala	Gly	Gly	Gln	Gln	Ser	Phe	Asp	Leu	Leu	Val	Ile	Gly	Gly	Gly	
		35					40					45				
Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Lys	Lys	
	50				55						60					
Val	Ala	Val	Ala	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Arg	Gly	Thr	Lys	Trp	
65				70					75						80	
Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	
			85					90					95			
Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg	Asp	Ala	His	His	
		100					105						110			
Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Gln	His	Asn	Trp	Lys	Thr	Met	
	115					120						125				
Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	
	130				135						140					
Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	
145				150						155					160	
Phe	Val	Asp	Glu	His	Thr	Val	Arg	Gly	Val	Asp	Lys	Gly	Gly	Lys	Ala	
		165						170					175			
Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly	Gly	Arg	Pro	
	180						185						190			
Arg	Tyr	Pro	Thr	Gln	Val	Lys	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser	
	195					200						205				
Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val	

210	215	220
Gly Ala Ser Tyr Val	Ala Leu Glu Cys Ala	Gly Phe Leu Thr Gly Ile
225	230	235
Gly Leu Asp Thr Thr	Val Met Met Arg Ser	Ile Pro Leu Arg Gly Phe
245	250	255
Asp Gln Gln Met Ser	Ser Leu Val Thr Glu	His Met Glu Ser His Gly
260	265	270
Thr Gln Phe Leu Lys	Gly Cys Val Pro Ser	His Ile Lys Lys Leu Pro
275	280	285
Thr Asn Gln Leu Gln	Val Thr Trp Glu Asp	His Ala Ser Gly Lys Glu
290	295	300
Asp Thr Gly Thr Phe	Asp Thr Val Leu Trp	Ala Ile Gly Arg Val Pro
305	310	315
Glu Thr Arg Thr Leu	Asn Leu Glu Lys Ala	Gly Ile Ser Thr Asn Pro
325	330	335
Lys Asn Gln Lys Ile	Ile Val Asp Ala Gln	Glu Ala Thr Ser Val Pro
340	345	350
His Ile Tyr Ala Ile	Gly Asp Val Ala Glu	Gly Arg Pro Glu Leu Thr
355	360	365
Pro Thr Ala Ile Lys	Ala Gly Lys Leu Leu	Ala Gln Arg Leu Phe Gly
370	375	380
Lys Ser Ser Thr Leu	Met Asp Tyr Ser Asn	Val Pro Thr Thr Val Phe
385	390	395
Thr Pro Leu Glu Tyr	Gly Cys Val Gly Leu	Ser Glu Glu Glu Ala Val
405	410	415
Ala Leu His Gly Gln	Glu His Val Glu Val	Tyr His Ala Tyr Tyr Lys
420	425	430
Pro Leu Glu Phe Thr	Val Ala Asp Arg Asp	Ala Ser Gln Cys Tyr Ile
435	440	445
Lys Met Val Cys Met	Arg Glu Pro Pro Gln	Leu Val Leu Gly Leu His
450	455	460
Phe Leu Gly Pro Asn	Ala Gly Glu Val Thr	Gln Gly Phe Ala Leu Gly
465	470	475
Ile Lys Cys Gly Ala	Ser Tyr Ala Gln Val	Met Gln Thr Val Gly Ile
485	490	495
His Pro Thr Cys Ser	Glu Glu Val Val Lys	Leu His Ile Ser Lys Arg
500	505	510
Ser Gly Leu Glu Pro	Thr Val Thr Gly Cys	Xaa Gly
515	520	

<210> 304
 <211> 528
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 527
 <223> Xaa = Any Amino Acid

<400> 304
Met Ala Ala Met Val Ala Gly Arg Met Trp Ala Ala Leu Arg Gly Pro
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Ser Arg Arg Phe Arg Pro Arg Thr Arg Ala Leu Thr Arg Gly Thr Arg
20 25 30
Gly Ala Ala Ser Ala Ala Gly Gly Gln Gln Ser Phe Asp Leu Leu Val
35 40 45
Ile Gly Gly Gly Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln
50 55 60
Leu Gly Lys Lys Val Ala Val Ala Asp Tyr Val Glu Pro Ser Pro Arg
65 70 75 80
Gly Thr Lys Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile
85 90 95
Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gly Met Ile Arg
100 105 110
Asp Ala His His Tyr Gly Trp Glu Val Ala Gln Pro Val Gln His Asn

Trp	Lys	Thr	Met	Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn
130						135					140				
Trp	Gly	His	Arg	Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn
145					150					155					160
Ile	Lys	Ala	Ser	Phe	Val	Asp	Glu	His	Thr	Val	Arg	Gly	Val	Asp	Lys
			165						170					175	
Gly	Gly	Lys	Ala	Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr
			180					185					190		
Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Thr	Gln	Val	Lys	Gly	Ala	Leu	Glu	Tyr
		195					200					205			
Gly	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys
210						215					220				
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
225					230					235					240
Leu	Thr	Gly	Ile	Gly	Leu	Asp	Thr	Thr	Val	Met	Met	Arg	Ser	Ile	Pro
			245						250					255	
Leu	Arg	Gly	Phe	Asp	Gln	Gln	Met	Ser	Ser	Leu	Val	Thr	Glu	His	Met
			260					265					270		
Glu	Ser	His	Gly	Thr	Gln	Phe	Leu	Lys	Gly	Cys	Val	Pro	Ser	His	Ile
		275					280					285			
Lys	Lys	Leu	Pro	Thr	Asn	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	His	Ala
290					295						300				
Ser	Gly	Lys	Glu	Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile
305					310				315						320
Gly	Arg	Val	Pro	Glu	Thr	Arg	Thr	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Ile
			325						330					335	
Ser	Thr	Asn	Pro	Lys	Asn	Gln	Lys	Ile	Ile	Val	Asp	Ala	Gln	Glu	Ala
			340					345					350		
Thr	Ser	Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg
		355					360					365			
Pro	Glu	Leu	Thr	Pro	Thr	Ala	Ile	Lys	Ala	Gly	Lys	Leu	Leu	Ala	Gln
		370				375					380				
Arg	Leu	Phe	Gly	Lys	Ser	Ser	Thr	Leu	Met	Asp	Tyr	Ser	Asn	Val	Pro
385					390					395					400
Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu
			405						410					415	
Glu	Glu	Ala	Val	Ala	Leu	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His
		420						425					430		
Ala	Tyr	Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Ala	Asp	Arg	Asp	Ala	Ser
		435					440					445			
Gln	Cys	Tyr	Ile	Lys	Met	Val	Cys	Met	Arg	Glu	Pro	Pro	Gln	Leu	Val
	450					455					460				
Leu	Gly	Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly
465					470					475					480
Phe	Ala	Leu	Gly	Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln
			485						490					495	
Thr	Val	Gly	Ile	His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	His
		500						505					510		
Ile	Ser	Lys	Arg	Ser	Gly	Leu	Glu	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly
		515					520					525			

<210> 305
 <211> 520
 <212> PRT
 <213> Mus musculus

<400> 305
 Met Val Ala Ala Leu Arg Gly Pro Ser Arg Arg Phe Arg Pro Arg Thr
 1 5 10 15
 Arg Ala Leu Thr Arg Gly Thr Arg Gly Ala Ala Ser Ala Ala Gly Gly
 20 25 30
 Gln Gln Ser Phe Asp Leu Leu Val Ile Gly Gly Gly Ser Gly Gly Leu
 35 40 45
 Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Lys Lys Val Ala Val Ala
 50 55 60

Asp	Tyr	Val	Glu	Pro	Ser	Pro	Arg	Gly	Thr	Lys	Trp	Gly	Leu	Gly	Gly
65					70					75					80
Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala
			85						90					95	
Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg	Asp	Ala	His	His	Tyr	Gly	Trp	Glu
			100					105					110		
Val	Ala	Gln	Pro	Val	Gln	His	Asn	Trp	Lys	Thr	Met	Ala	Glu	Ala	Val
		115					120					125			
Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	Val	Gln	Leu	Gln
	130					135					140				
Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	Phe	Val	Asp	Glu
145					150					155					160
His	Thr	Val	Arg	Gly	Val	Asp	Lys	Gly	Gly	Lys	Ala	Thr	Leu	Leu	Ser
			165					170						175	
Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Thr
			180					185					190		
Gln	Val	Lys	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser	Asp	Asp	Ile	Phe
		195					200					205			
Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr
	210					215					220				
Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile	Gly	Leu	Asp	Thr
225					230					235					240
Thr	Val	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe	Asp	Gln	Gln	Met
				245					250					255	
Ser	Ser	Leu	Val	Thr	Glu	His	Met	Glu	Ser	His	Gly	Thr	Gln	Phe	Leu
			260					265					270		
Lys	Gly	Cys	Val	Pro	Ser	His	Ile	Lys	Lys	Leu	Pro	Thr	Asn	Gln	Leu
		275				280						285			
Gln	Val	Thr	Trp	Glu	Asp	His	Ala	Ser	Gly	Lys	Glu	Asp	Thr	Gly	Thr
	290					295					300				
Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro	Glu	Thr	Arg	Thr
305					310				315						320
Leu	Asn	Leu	Glu	Lys	Ala	Gly	Ile	Ser	Thr	Asn	Pro	Lys	Asn	Gln	Lys
			325						330					335	
Ile	Ile	Val	Asp	Ala	Gln	Glu	Ala	Thr	Ser	Val	Pro	His	Ile	Tyr	Ala
			340					345					350		
Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	Pro	Glu	Leu	Thr	Pro	Thr	Ala	Ile
		355					360					365			
Lys	Ala	Gly	Lys	Leu	Leu	Ala	Gln	Arg	Leu	Phe	Gly	Lys	Ser	Ser	Thr
	370					375					380				
Leu	Met	Asp	Tyr	Ser	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu
385					390					395					400
Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val	Ala	Leu	His	Gly
			405					410						415	
Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	Tyr	Tyr	Lys	Pro	Leu	Glu	Phe
			420					425					430		
Thr	Val	Ala	Asp	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Ile	Lys	Met	Val	Cys
		435				440						445			
Met	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His	Phe	Leu	Gly	Pro
	450				455						460				
Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly	Ile	Lys	Cys	Gly
465					470					475					480
Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln	Thr	Val	Gly	Ile	His	Pro	Thr	Cys
			485					490						495	
Ser	Glu	Glu	Val	Lys	Leu	His	Ile	Ser	Lys	Arg	Ser	Gly	Leu	Glu	
			500				505						510		
Pro	Thr	Val	Thr	Gly	Cys	Cys	Gly								
		515					520								

<210> 306
 <211> 499
 <212> PRT
 <213> Mus musculus

<400> 306
 Met Asn Gly Ser Lys Asp Pro Pro Gly Ser Tyr Asp Phe Asp Leu Ile

1	Ile	Ile	Gly	Gly	5	Gly	Ser	Gly	Gly	10	Leu	Ala	Ala	Ala	Lys	Glu	15	Ala	Ala
				20						25						30			
Lys	Phe	Asp	Lys	Lys	Val	Leu	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro				
		35						40						45					
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys				
	50					55					60								
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu				
65				70						75					80				
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Asp	Thr	Val	Lys	His				
				85					90					95					
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Ser	His	Ile	Gly	Ser	Leu				
		100						105					110						
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu				
	115						120					125							
Asn	Ala	Tyr	Gly	Arg	Phe	Ile	Gly	Pro	His	Arg	Ile	Val	Ala	Thr	Asn				
	130					135					140								
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala				
145				150					155					160					
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr				
			165					170						175					
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys				
		180						185					190						
Thr	Leu	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe					
	195					200						205							
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu				
	210					215					220								
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met				
225				230					235					240					
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile				
			245						250					255					
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Thr	Ala	Gln				
		260						265					270						
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Gly	Glu	Phe	Asn	Thr	Val	Leu				
		275					280					285							
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr				
	290					295					300								
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp				
305				310						315									
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu				
			325						330					335					
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu				
		340						345					350						
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Asn	Val	Lys	Cys	Asp	Tyr	Asp				
		355				360						365							
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly				
	370					375						380							
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu				
385				390					395					400					
Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro	Ser	Arg				
			405						410					415					
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Leu	Lys	Asp	Asp				
		420						425					430						
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val				
		435					440					445							
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Gln				
	450					455					460								
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile	Phe	Thr				
465				470					475					480					
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln	Ser	Gly				
			485					490					495						
Cys	Cys	Gly																	

<210> 307
<211> 497

<212> PRT
<213> Rattus norvegicus

<220>
<221> VARIANT
<222> 497
<223> Xaa = Any Amino Acid

<400> 307

Met	Asn	Asp	Ser	Lys	Asp	Ala	Pro	Lys	Ser	Tyr	Asp	Phe	Asp	Leu	Ile
1				5					10					15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
		20						25					30		
Lys	Phe	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Asn	Gly	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
	50					55				60					
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Gly	Gln	Ala	Leu	
65				70					75					80	
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Leu	Glu	Asp	Thr	Val	Lys	His
				85				90						95	
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Lys	Phe	Ile	Gly	Pro	His	Lys	Ile	Met	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Val	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145				150						155				160	
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
			165					170					175		
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
	195						200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225				230						235				240	
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile
			245						250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Lys	Val	Thr	Ala	Lys
		260						265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Asp	Glu	Phe	Asn	Thr	Val	Leu
	275						280					285			
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305				310						315				320	
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
		340						345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Asp
	355						360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly
	370					375						380			
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385				390						395				400	
Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Val	Ile	Cys	Asn	Leu	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
	435						440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Gln
	450					455					460				

Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Ile Phe Thr
 465 470 475 480
 Thr Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile Leu Gln Ser Gly
 485 490 495
 Xaa

<210> 308
 <211> 176
 <212> PRT
 <213> Rattus norvegicus

<400> 308
 Arg Ile His Ala Gly Gly Ala Gly Arg Arg Arg Gly Gly Ala Arg Arg
 1 5 10 15
 Ala Gly Val Phe Ile Leu Leu Ala His Pro Asn Lys Lys Gly Leu Leu
 20 25 30
 Arg Lys Leu Ser Thr Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr
 35 40 45
 Asp Phe Asp Leu Ile Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala
 50 55 60
 Ala Lys Glu Ala Ala Lys Phe Asp Lys Lys Val Met Val Leu Asp Phe
 65 70 75 80
 Val Thr Pro Thr Pro Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys
 85 90 95
 Val Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu
 100 105 110
 Leu Gly Gln Ala Leu Lys Asp Ser Arg Asn Tyr Gly Trp Lys Leu Glu
 115 120 125
 Asp Thr Val Lys His Asp Trp Glu Lys Met Thr Glu Ser Val Gln Asn
 130 135 140
 His Ile Gly Ser Leu Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys
 145 150 155 160
 Lys Val Val Tyr Glu Asn Ala Tyr Gly Lys Phe Ile Gly Pro His Lys
 165 170 175

<210> 309
 <211> 498
 <212> PRT
 <213> Rattus norvegicus

<220>
 <221> VARIANT
 <222> 497
 <223> Xaa = Any Amino Acid

<400> 309
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr Asp Phe Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Lys Glu Ala Ala
 20 25 30
 Lys Phe Asp Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
 35 40 45
 Leu Gly Thr Asn Gly Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Lys Asp Ser Arg Asn Tyr Gly Trp Lys Leu Glu Asp Thr Val Lys His
 85 90 95
 Asp Trp Glu Lys Met Thr Glu Ser Val Gln Asn His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Lys Phe Ile Gly Pro His Lys Ile Met Ala Thr Asn
 130 135 140

Asn Lys Gly Lys Glu Lys Val Tyr Ser Ala Glu Arg Phe Leu Ile Ala
 145 150 155 160
 Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
 165 170 175
 Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
 180 185 190
 Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
 195 200 205
 Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu
 210 215 220
 Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
 225 230 235 240
 Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Thr Lys Ile
 245 250 255
 Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Lys Val Thr Ala Lys
 260 265 270
 Ser Thr Asn Ser Glu Glu Thr Ile Glu Asp Glu Phe Asn Thr Val Leu
 275 280 285
 Leu Ala Val Gly Arg Asp Ser Cys Thr Arg Thr Ile Gly Leu Glu Thr
 290 295 300
 Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
 305 310 315 320
 Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
 325 330 335
 Glu Gly Lys Leu Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
 340 345 350
 Leu Ala Gln Arg Leu Tyr Gly Gly Ser Thr Val Lys Cys Asp Tyr Asp
 355 360 365
 Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Cys Cys Gly
 370 375 380
 Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
 385 390 395 400
 Val Tyr His Ser Phe Trp Pro Leu Glu Trp Thr Val Pro Ser Arg
 405 410 415
 Asp Asn Asn Lys Cys Tyr Ala Lys Val Ile Cys Asn Leu Lys Asp Asn
 420 425 430
 Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
 435 440 445
 Thr Gln Ala Leu Gln Pro Leu Lys Cys Gly Leu Thr Lys Gln Gln Leu
 450 455 460
 Asp Ser Thr Ile Gly Ile His Pro Val Cys Ala Glu Ile Phe Thr Thr
 465 470 475 480
 Leu Ser Val Thr Lys Arg Ser Gly Gly Asp Ile Leu Gln Ser Gly Cys
 485 490 495
 Xaa Gly

<210> 310
 <211> 11
 <212> PRT
 <213> Rattus norvegicus

<400> 310
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr
 1 5 10

<210> 311
 <211> 496
 <212> PRT
 <213> Rattus norvegicus

<400> 311
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr Asp Phe Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala

<221> VARIANT
 <222> 525
 <223> Xaa = Any Amino Acid

<400> 312

Met	Ala	Ala	Ile	Val	Ala	Ala	Leu	Arg	Gly	Ser	Ser	Gly	Arg	Phe	Arg
1				5					10					15	
Pro	Gln	Thr	Arg	Val	Leu	Thr	Arg	Gly	Thr	Arg	Gly	Ala	Ala	Gly	Ala
			20					25					30		
Ala	Ser	Ala	Ala	Gly	Gly	Gln	Gln	Asn	Phe	Asp	Leu	Leu	Val	Ile	Gly
		35				40						45			
Gly	Gly	Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly
	50				55					60					
Arg	Lys	Val	Ala	Val	Ala	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Arg	Gly	Thr
65				70					75					80	
Lys	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys
			85					90					95		
Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg	Asp	Ala
		100					105						110		
Gln	His	Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Gln	His	Asn	Trp	Lys
	115				120							125			
Ala	Met	Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly
	130				135						140				
His	Arg	Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys
145				150						155					160
Ala	Ser	Phe	Val	Asn	Glu	His	Thr	Val	His	Gly	Val	Asp	Lys	Ala	Gly
			165					170						175	
Lys	Val	Thr	Gln	Leu	Ser	Ala	Lys	His	Ile	Val	Ile	Ala	Thr	Gly	Gly
		180					185						190		
Arg	Pro	Lys	Tyr	Pro	Thr	Gln	Val	Lys	Gly	Ala	Leu	Glu	His	Gly	Ile
	195				200							205			
Thr	Ser	Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu
	210				215						220				
Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr
225				230						235					240
Gly	Ile	Gly	Leu	Asp	Thr	Thr	Val	Met	Met	Arg	Ser	Val	Pro	Leu	Arg
			245					250						255	
Gly	Phe	Asp	Gln	Gln	Met	Ala	Ser	Leu	Val	Thr	Glu	His	Met	Glu	Ser
		260						265					270		
His	Gly	Thr	Arg	Phe	Leu	Lys	Gly	Cys	Val	Pro	Ser	Leu	Ile	Arg	Lys
	275						280					285			
Leu	Pro	Thr	Asn	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Leu	Ala	Ser	Gly
	290				295					300					
Lys	Glu	Asp	Val	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg
305				310						315					320
Val	Pro	Glu	Thr	Arg	Asn	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asn	Thr
			325					330						335	
Asn	Pro	Lys	Asn	Gln	Lys	Ile	Ile	Val	Asp	Ala	Gln	Glu	Ala	Thr	Ser
		340						345					350		
Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	Pro	Glu
	355						360					365			
Leu	Thr	Pro	Thr	Ala	Ile	Lys	Ala	Gly	Lys	Leu	Leu	Ala	Gln	Arg	Leu
	370				375						380				
Phe	Gly	Lys	Ser	Ser	Thr	Leu	Met	Asn	Tyr	Ser	Asn	Val	Pro	Thr	Thr
385					390					395					400
Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu
			405					410						415	
Ala	Val	Ala	Leu	His	Gly	Gln	Glu	His	Ile	Glu	Val	Tyr	His	Ala	Tyr
		420						425					430		
Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Ala	Asp	Arg	Asp	Ala	Ser	Gln	Cys
	435					440						445			
Tyr	Ile	Lys	Met	Val	Cys	Met	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly
	450				455						460				
Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala
465				470						475					480
Leu	Gly	Ile	Gln	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln	Thr	Val
			485					490						495	

Gly	Ile	His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	His	Ile	Ser
			500					505					510		
Lys	Arg	Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly		
		515					520					525			

<210> 313
 <211> 499
 <212> PRT
 <213> Sus Scrofa

<220>
 <221> VARIANT
 <222> 498
 <223> Xaa = Any Amino Acid

<400> 313

Met	Asn	Gly	Ala	Glu	Glu	Leu	Pro	Glu	Met	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5				10						15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
		20						25					30		
Arg	Phe	Asn	Lys	Arg	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Ser	Cys
	50					55				60					
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65				70				75						80	
Arg	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Asn	Val	Glu	Glu	Thr	Ile	Lys	His
				85				90						95	
Asp	Trp	Glu	Arg	Met	Thr	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Thr	Tyr	Glu
			115				120						125		
Asn	Ala	Tyr	Gly	Gln	Phe	Val	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Lys	Phe	Leu	Ile	Ala
145				150						155				160	
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165				170						175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200						205		
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225				230						235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
		275				280						285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305				310						315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
	355					360						365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400

Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln
	450				455						460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly
				485					490					495	
Cys	Xaa	Gly													